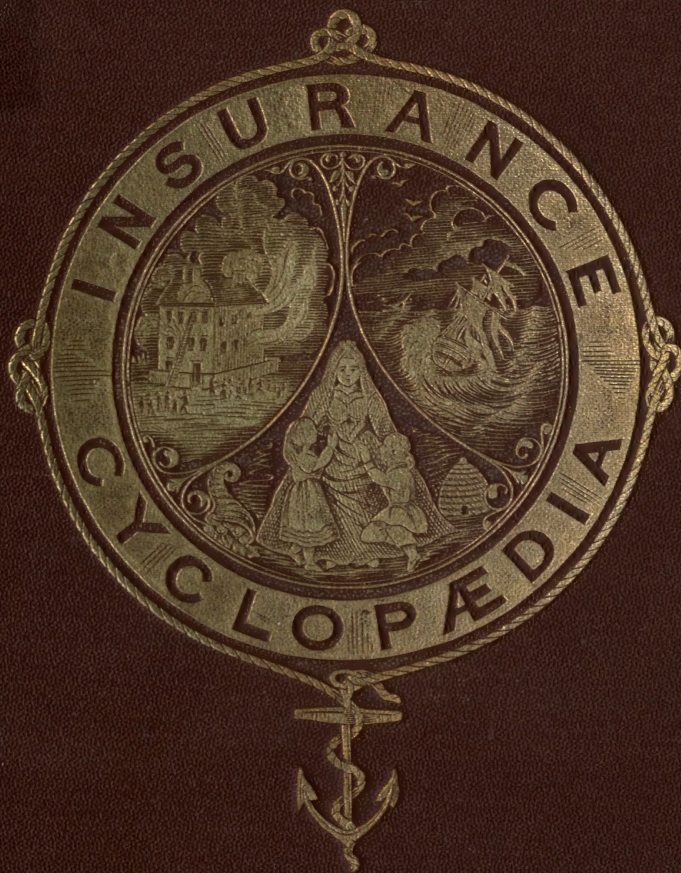





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THE INSURANCE CYCLOPÆDIA:

BEING

A DICTIONARY

OF THE DEFINITION OF TERMS USED IN CONNEXION WITH THE THEORY
AND PRACTICE OF INSURANCE IN ALL ITS BRANCHES:

A BIOGRAPHICAL SUMMARY

OF THE LIVES OF ALL THOSE WHO HAVE CONTRIBUTED TO THE
DEVELOPMENT AND IMPROVEMENT OF THE THEORY AND PRACTICE
OF INSURANCE: WHETHER AS AUTHOR, MANAGER, ACTUARY,
SECRETARY, AGENCY SUPERINTENDENT, OR OTHERWISE.

A BIBLIOGRAPHICAL REPERTORY

OF ALL WORKS WRITTEN UPON THE SUBJECT OF INSURANCE AND ITS
ASSOCIATED SCIENCES:

AN HISTORICAL TREASURY

OF EVENTS AND CIRCUMSTANCES CONNECTED WITH THE ORIGIN AND
PROGRESS OF INSURANCE, INCLUDING A HISTORY OF ALL KNOWN
OFFICES OF INSURANCE FOUNDED IN GREAT BRITAIN,
FROM THE BEGINNING.

AND ALSO CONTAINING A DETAILED

ACCOUNT OF THE RISE AND PROGRESS OF INSURANCE
IN EUROPE AND IN AMERICA.

AND A

COMPENDIUM OF VITAL STATISTICS.

BY

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VOLUME II.

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TABLE OF ABBREVIATIONS USED IN THIS WORK;

MANY OF WHICH ARE SPECIALLY ADAPTED TO ITS PAGES :—

A.	Accident Insurance	Int.	Interest
Act.	Actuary	Intro.	Introduction
Act of Parl.	Act of Parliament		
Add.	Addition, additional		
Adv.	Advertisement	L.	Life, Life Insurance
Amalg.	Amalgamation	L.J.	Lord Justice
Ann.	Annual, annum	Lim.	Limited
Ann.rep.	Annual report	Liq.	Liquidator, liquidation, liquidated
Annu.	Annuities, annuity, annuitant	Lond.	London
Ap.	Apprenticeship Insurance		
Art. of Asso.	Articles of Association	M.	Marine, Marine Insurance
Art. of Sett.	Articles of Settlement	Mag.	Magazine
Assu.	Assure, assured, assurance, assu- rances	Man.	Manager
Assu. Mag.	<i>Assurance Magazine</i>	Mar. Ins.	Marriage Insurance
Asso.	Association	Mort.	Mortality
		Mort. obs.	Mortality observation
		Mut.	Mutual
B.	Birth Insurance		
B. of mort.	Bill of mortality	N. Y.	New York
Bal.	Balance	Non-par.	Non-participating
Bon.	Bonus, bonuses		
Brit.	Britain, British, Britannia		
Bus.	Business		
		Obs.	Observations
C.	Christening Insurance	Off. Liq.	Official Liquidator
C.	Cent.	Off. Man.	Official Manager
C.p.c.	Cent. per cent.	Ordin.	Ordinance
Cap.	Capital	Orig.	Original
Chap.	Chapter		
Co., Cos.	Company, companies	P.a.	Per annum
Comp. regis.	Complete registration	P.c.	Per cent.
Con. Act.	Consulting Actuary	Pamph.	Pamphlet
Consti.	Constitution	Para.	Paragraph
Contin.	Contingencies	Parl.	Parliament
Corp.	Corporation	Parl. Com.	Parliamentary Committee
		Parti.	Participation
D. of Sett.	Deed of Settlement	Phil. Trans.	<i>Philosophical Transactions</i>
Div.	Dividend, dividends, division	Pol.	Policy, policies
Dol.	Dollar	Pop.	Population
		Prelim.	Preliminary
Ed.	Edition, editor	Prem.	Premium, premiums
Eds.	Editions	Prob.	Probability, probabilities
Edin.	Edinburgh	Prosp.	Prospectus
Ency. Brit	<i>Encyclopædia Britannica</i>	Prov. regis.	Provisional registration
Endow.	Endowment, endowments	Pub.	Published, publisher, publication
E. and W.	England and Wales		
Estab.	Established, establishment	R.	Report
Exp.	Experience	Red. prem.	Reduction of premium
Expec.	Expectation	Reg.-Gen.	Registrar-General
		Regis.	Registration
F.	Fire, Fire Insurance	Rep.	Report
F. So.	Friendly Society	Rev.	Reversion
Fid.	Fidelity guarantee		
Fr.	France	S.	Service Insurance
		Sec.	Secretary
G.	Guarantee Insurance	So.	Society
Gl.	Glass Insurance	Stat.	Statute
Gov.	Government	Stg.	Sterling
Gt. Brit.	Great Britain	Subs.	Subscribed, subscribers, subscrip- tion
Guar.	Guarantee		
		T.	Table
H.	Hail Insurance	Trans.	Transfer, transferred, translation
Hist.	History		
		U. K.	United Kingdom
Incorp.	Incorporation	U. S.	United States
Ins.	Insure, insured, insurance, insur- ances		
Inst.	Institution, institutions	V. C.	Vice Chancellor
		V. Sta.	Vital Statistics
		Vict.	Victoria

EXPLANATION TO THE READER.

The design of this work is that it shall be, as far as possible, self-interpreting. All technical terms used in its pages are explained in its pages, in their alphabetical order.

The arrangement of subjects is strictly *Alphabetical*.

The arrangement of articles is, as far as possible, *Chronological*. Dates are given whenever possible. Writers on Insurance subjects generally, have a great disregard for chronological exactitude.

Words in Small Capitals placed in brackets, as [USURY], mean that the subject will be further treated of under that head.

When Small Capitals are used in the text without the brackets, it signifies that the subject is, or will be, treated of as a separate article.

Offices founded in London, or books published there, are not individually so designated in the following pages. The rule we have followed is to state all the exceptions. Therefore where it is not specifically stated *otherwise*, London is to be assumed.

We are especially desirous of noticing all INSURANCE PAMPHLETS. Many of these are privately printed, or only accessible through their authors. Our thanks will be due for any contributions of this description.

A Table of the principal Abbreviations used in the work is given on the preceding page.

THE ENCYCLOPÆDIA OF INSURANCE.

COMMERCIAL CREDIT INSURANCE.—The application of the principle of Ins. to the contingencies of mercantile and trade credit opens up a series of considerations differing in some respects from any we have yet approached. There can be no doubt that an investigation over a sufficient range of data would determine what *had been* the per-centage of loss in any given branch of trade or commerce, over any given period of time. But no such investigation could precisely discriminate what portion of the ascertained loss was due to individual laxity on the part of seller or buyer, and what simply to unavoidable misfortune, and the pressure of the times. The operation of the law of averages cannot be altogether relied upon, when the operation of the human will is liable to be brought into direct antagonism therewith. It may be replied that the operations of the human will are as capable of being reduced to principles of average as the operation of anything which we regard as pure chance. That has been estab. in regard to certain events. But the incidents of commerce embrace many considerations to which the doctrine of mathematical prob. has never yet been applied. Among these may be named the contingencies of peace and war; political revulsions; famine or superabundance; monetary panics; and rate of mercantile discount, as affected by any, or nearly all of these. Then, again, different branches of business are liable to fluctuations from entirely different causes. Different countries are differently affected by similar events. We shall indeed presently learn that different parts of the same country present *phases of credit*, which any but those of the largest experience must fail to comprehend. These are but a few of the more prominent considerations which arise, and without some intimation of which the reader could hardly approach the subject with any chance of comprehending it. The question of "selection against the office"—that is, of the more hazardous insuring while the less hazardous fail to do so—is only an incident which appertains to all branches of ins. bus. in a greater or less degree. In this branch of ins. prob. to a greater degree than in most others. We shall now see what precautions have been taken to reduce to a minimum these adverse chances.

Looking at the subject historically, we find the author of *Le Guidon*, written some three centuries since, speaking thus familiarly: "*Creditors even may insure their debts, if their debtors remove from one country to another.*" This is not precisely the shape which the more modern application of Commercial Credit Ins. has taken; but in earlier times this was one of the chief incidents which had to be guarded against. In none of the other early writers do we find any details regarding this branch of bus.

During the South Sea mania, 1710-20, there were several cos. projected for the *Insurance of Debts*. The only two of which we now have any record are: (1) *A co. for the ins. of debts*; (2) *a rival to the above, with a cap. of £2,000,000, held at Robin's*.

Under the head of **BARGAINS, INS. OF**, we have spoken of a branch of ins. which prevailed in Holland, and also in this country, during the 18th century; but it differed in many material respects from the system now under consideration.

Under **PROFITS, INS. OF**, we shall speak of another branch of ins. distinct from the present.

The promoters of the *British Commercial Ins. Co.*, founded in 1820, propounded a scheme of commercial credit ins., of which the following are the main features:

1. Merchants, manufacturers, and traders may ins. in this office the trading debts due to them, on paying an ann. prem. upon the average amount of their running credits; the average being taken upon the trading of the three preceding years.
2. The Co. engage to pay the loss incurred by any debtor or debtors of the insurer having become bankrupt, or sought relief under any Act of Parl. now made or to be made for the relief of insolvent debtors, subject to the conditions annexed, within three months after the time of such debt or debts being legally estab.

The classification of risks and rates of prem. were as follows :

Common Ins.—Merchants, manufacturers of the staple commodities of the kingdom, wharfingers and large wholesale dealers of every description—20s. p.c. p.a. on the average amount of running credit. *Hazardous Ins.*—Manufacturers of small articles, haberdashers, hosiers, woollen drapers and traders of similar description, retail dealers, and all traders giving extensive country credits—30s. p.c. p.a. on the average amount of running credits. *Doubly Hazardous Ins.*—Manufacturers of and dealers in all kinds of fancy articles—40s. p.c. p.a. on the average amount of running credits.

The conditions of ins. were as follows :

1. Statement of running credits, upon the average of three years last past, to be supplied ; which average to be the amount on which ins. to be made. Any false description to vitiate pol.
2. Insured not to recover upon any debt of bankrupt or insolvent debtors, unless he shall prove that at the *respective times* of credit being given the debtor was in good credit ; nor in case of fraud and collusion between debtor and creditor.
3. If the insured extend his credits beyond the average of the preceding three years, Co. not liable for add. losses unless add. prem. be paid.
4. Co. will not ins. debts contracted by loan of money, nor upon bills of exchange and notes of hand, except when taken in payment of goods, nor upon any uncompleted contract, nor for any debt contracted before date of policy, and only for net price in any case.
5. Upon death of insured, his representatives may continue ins. by indorsement on policy.
6. Insured to give notice to office within 7 days of bankruptcy or insolvency of his debtor, if within bills of mort. or near an agency of the Co., or within 15 days elsewhere ; and furnish full particulars of claim.
7. Insured to legally estab. his claim, and then assign same to the Co., and within 3 months Co. to pay insured 15s. in the £ ; and afterwards all dividends beyond 5s., so that creditor may in the whole receive up to 20s. in the £, but no more.

Then there is the following :

N.B.—The plan of ins. from losses in trade being entirely new, it is necessary, in order to secure the confidence of the public, to state that it is founded upon solid principles, derived from extensive inquiry, instituted for the purpose of discovering the proportion which losses bear to trade ; which, after much research, has been accurately ascertained, both as regards the whole kingdom and each of the trading towns therein particularly ; and it has been clearly estab. that ins. may be effected with perfect safety and certain profit to the Co., and at the same time with liberality to the public, on the terms proposed.

We believe the Co. never actually carried on this branch of its proposed bus.

In 1844 some statistics bearing upon our subject were collected. There were in that year 1500 cases of bankruptcy, upon which about £1,200,000 was paid in dividends. Assuming the average dividend to be about 3s. in the £, which was then considered a very fair estimate, the total of the debts in these bankruptcies was £8,000,000, of which £6,800,000 was lost.

About 1845 the *Commercial Casualty Mut. Assn. and Indemnity So.* was projected. The So. was to be founded on the mut. plan, with a guarantee fund of £100,000 ; profits to be divided every three years among the assured ; and a benevolent fund to be estab. for the benefit of subs. and their families, as already stated in our brief notice of the asso. The preliminary prosp. set out the scheme very fully. We here give a condensation of its main features. Its preamble was as follows :

It is a fallacy to suppose that people's misfortunes always originate with themselves. Doubtless many failures in bus. result from fraud, culpable neglect, and a gross disregard of caution ; but so long as the organization of men's minds is as varied as the features that distinguish them from one another, so long must diversity of opinion exist as to the boundaries which should confine the spirit of commerce. Trade is at all times hazardous from the beginning, and every day furnishes instances where persons of high probity, great intellect, and capacity for their peculiar pursuits, have been reduced to poverty by the dishonesty or mismanagement of others.

It must be admitted that the tendency of the Bankrupt Laws would be still further promoted, and their character improved, were some certain provisions made for those individuals who, without discredit to themselves, are compelled to seek their protection. Now the scientific application of the principles of assu., founded on sufficient data, has long been esteemed by the intelligent portion of the community as the only true and effectual remedy for the pecuniary inconveniences contingent on the varied reverses of fortune, and the uncertainty of human life : and, holding these views, the promoters of the *Commercial Casualty Mut. Assn. and Indemnity So.*, who are in possession of an extensive set of tables carefully calculated on an elaborate collection of statistical facts bearing directly on the subject, do not hesitate to place before the public a well-matured scheme for the alleviation of the evils inseparable from a state of bankruptcy.

It was therefore proposed—1. That the provision be in the form of an ins. ; the Co. undertaking to grant pol. of ins. for sums not exceeding £5000, to be paid upon the production of a 3rd class certificate in bankruptcy, provided no suspension thereof be ordered by the Commissioner ; and that add. of 25 and 50 p.c. respectively be made to such pol. on the production of 2nd and 1st class certificates. 2. That the prem. paid subsequently to the ascertained date of solvency be returned by the Co. to the bankrupt's estate ; and that similar returns be made in the event of the insured compounding with his creditors. 3. That 3 years must elapse from the date of the ins. before any pol. could become a claim, when the amount should revert to three trustees appointed by the So. for that purpose, to be paid over by them to the nominee of the insured, such nomination to be made at the time of effecting the ins. 4. Those only to be eligible for ins. who had been estab. in any bus. or trade subjected to the Bankruptcy Laws for the space of two years prior to the date of their application. 5. That the So. should grant ins. of the kind described to be secured as marriage settlements ; and also in all cases where the insured may propose to afford a guarantee of indemnification to others. The pol. to hold good only in those instances where no suspension of certificate should occur ; and in cases of suspension the prem. only to be insured, the directors "reserving a discretionary power as to the payment of the whole pol.

The following is the scale of premis. "as prepared by the Act. of the So.," viz. ann. prem. required to ins. in the event of bankruptcy £100 on a 3rd class certificate; £125 on a 2nd class certificate; and £150 on a 1st class certificate; and subject to conditions already stated.

	£	s.	d.
1. Attorneys, Architects, Engineers, Printers and Pub., Underwriters, Dentists.	5	0	
2. Cheesemongers, Chandlers, Fishmongers, Grocers, Butchers, Bakers, Cow-keepers, Chemists and Druggists, Poulterers, Tobacconists	6	6	
3. Eating and Coffee-housekeepers, Innkeepers, Lodging and Boarding-housekeepers	8	0	
4. Hatters, Hosiers and Haberdashers, Milliners, Boot-makers, Furriers, Saddlers, Tailors, Upholsterers, Hairdressers, Silk-mercers, Undertakers, Bookbinders, Ironmongers, Oil and Colourmen, Painters and Glaziers, Pewterers, Paper-Stainers, Curriers, *Callenderers, Dyers, Carvers and Gilders, Cutlers, Statuary Masons, Glass-cutters, Glass-silverers, Tin and Iron Workers, Tanners, Slaters, Importers, Manufacturers and General Dealers	9	0	
5. Brewers, Beer-retailers, Victuallers, Booksellers, Lithographers, Music-sellers, Newsvendors	10	0	
6. Contractors, Builders, Ship-builders, Coach-builders, Coachsmiths, Coopers, Carpenters, Gasfitters, Smiths, Shipwrights, Wheelwrights, Coach-plates	12	6	
7. Agents and Auctioneers, Brokers, Factors, Master Mariners, Warehousemen, Shipowners, Saw-mill proprietors... ..	15	0	
8. Farmers, Nurserymen, and Gardeners	1	0	0
9. Coach and Cab Proprietors, Carriers and Carmen	1	10	0

The prospectus continues :

The principles above explained have exclusive reference to bankruptcy; but the promoters deem it essential to the utility and well-being of the So., that the field of their operations be extended so as to combine with bankruptcy, in one pol., assu. of various kinds, more particularly such as are connected with the duration of human life. It is therefore proposed—1. To grant pol. of assu. payable in the event of *bankruptcy or death*. 2. To grant deferred annu. after a certain period to such subs. as shall not have been bankrupts during the interval. 3. To grant deferred annu. to commence immediately subsequent to bankruptcy. 4. To grant annu. to wives or widows in the event of death or bankruptcy. 5. To grant annu. to children for educational purposes and apprentice fees. 6. And to embrace all the usual features of the best-estab. L. assu. asso.

It is also proposed that the So. shall grant pol. assuring the creditor against the bankruptcy or insolvency of a debtor, in respect of any account amounting to £50 and upwards for goods sold and delivered, the debt having been not more than 28 days contracted, and to continue the pol. to that amount ann.

The Consulting Act. was Mr. R. Thompson Jopling; indeed no other name appeared on the prosp. save and except Mr. Philip Roberts, the proposed solicitor to the proposed Co. The Co. did not get beyond prov. regis. at this period, but it was in point of fact the nucleus of the *Solvency Mut.*, founded in 1852.

It seems prob. that the practice of Commercial Credit Ins. was adopted in *France* about this period, 1846–48. A few years later there were three asso. for this purpose in existence, viz. *L'Union du Commerce*; *La Société Mutuelle*; and *La Sécurité Commerciale*, founded 1848. These we shall have occasion to speak of in relation to their bus. results as we proceed.

In 1848 Mr. Robert Watt pub. a pamph., *The Principle of Ins. applied to Mercantile Debts*, which attracted a good deal of attention. We can only give a brief outline of it here :—Mr. Watt, looking at the various modes in which the principle of ins. had been brought to bear, not only as a protection against shipwreck and fire, but also against disease and death of cattle, the destruction of crops by hail, the dishonesty of persons in situations of trust, etc.; and recognizing at the same time the calamities to which even the most prudent trader is always more or less liable from the occurrence of losses by unforeseen failures, was disposed to believe that the latter class of misfortune might also come within the scope of a similar mode of precaution. As bus. was then conducted, a man with a sound trade but a small cap. might be swept away during the first year or two of his efforts by an almost accidental loss; when, if he could have spread that loss over a given period, he might have gone on to eventual prosperity. And even when the cap. of a trader was what was termed ample, he could never, let his caution be what it might, escape the anxiety that attends the possibility of a severe blow from some unlooked-for combination of circumstances.

The *Times* of 20th April, 1848, reviewed the proposal very fully, remarking: "The suggestion is one that contains a useful germ, and may set some minds to work towards a practical result." The writer suggested some modifications.

The House of Lords Committee on Bankruptcy, which sat in 1848, elicited evidence which threw some light upon this subject. One witness said :—"The Bankruptcy Tax [meaning the general effect of losses by bad debts] amounts to 15 p.c. on my net profits. It amounts to a tax of 2½ p.c. on the commodities I deal in. I have obtained a return from a person engaged in a different trade. The similarity is very remarkable: the loss by bankruptcy and insolvency on his returns is 2½ p.c. It amounts to 25 p.c. on his net profits. Another witness said :

I had a return of 48 consecutive cases furnished to me from the Court of Bankruptcy by a

Commissioner, in which the amount distributed was £41,000, upon a gross amount proved of £100,000. Of that £41,000 only £23,000 was distributed as dividends; the remainder, £18,000, having been applied to the payment of preference debts, payments to the court, payments to solicitors, payments to official assignees, etc. The gross amount of liabilities was £190,000; the property sold realized £28,280; and the debts collected, 1389 in number, amounted to £13,545, or an average of 6s 1s. each. The charge of the official assignee for collecting and distributing this sum was £176, or 14 p.c.

In 1849 the inst. *L'Union du Commerce* was in full operation in Paris. The total amount of pol. opened and subs. in that year in the Department of the Seine alone was £2,527,240. The actual mercantile transactions entered upon or declared under these pol. amounted to £1,223,205, and on this sum alone the premiums were charged. Such premis. amounted to £7169. From this, however, had to be deducted the share of the risk which the insurers themselves bore in the transaction. This amounted to £2061 of the premis.—leaving a net sum applicable to the casualties of the year of £4617. Against this the claims for losses incurred by subscribers amounted to £2251—leaving a bal. for the reserved fund of £2365. Further, a sum of £675 was expected to be recovered from bankrupts' estates: thus making a total reserve for the year of £3041—equal to 135 p.c. on the claims on losses indemnified.

In 1849 also there was a meeting of *La Société Mutuelle* in Paris. No bal.-sheet had been circulated, but from a para. in the ann. report it appeared that the So. was in a high state of prosperity, since, "but for some disagreement between the ex-director and the executive, the whole of the contributions due for 1849 would not have been required—that indeed one-half would have sufficed."

In 1850 we find some important details regarding *La Sécurité Commerciale*, which had then been in operation for two years. The total insurances granted had reached the large sum of £31,537,291. At the end of 1850 the number of members was 1216. In that year the premiums amounted to £19,745, while the losses notified were 311 in number, amounting to £6780. The asso. had been able to grant to the ins. "payment of the largest proportion of actual losses which was permitted by the constitution and laws of the So., viz. 90 p.c.," and beyond this a sum of £3842 was carried to the reserved fund. In 1851 the operations were not so favourable—the year had been distinguished by numerous failures. The insured were reimbursed only about 80 p.c. of their losses. The bus. of the So. had assumed considerable proportions. At the end of 1851 there were 1868 members, who were insured for ann. bus. transactions amounting in the aggregate to £16,102,400, and the losses during the year were nearly £100,000, of which, as we have seen, it was believed about £80,000, that is 80 p.c., would be made good to the members—90 p.c. being the maximum of indemnity allowed to the members by the regulations of the So. It was pointed out that in this class of bus. difficulties would always be experienced in obtaining a proper classification of the insured. Thus many of those who were described as wholesale merchants were found to be in some degree retail dealers, and instead of paying a prem. of ½ p.c. in the former capacity, ought to have paid ¾ p.c. in the latter. It was a feature of the So. to collect information by its agents of the relative credit of merchants and traders in different towns in France—this not only to facilitate the safe operations of commerce, but as a means of securing its own success by encouraging caution in its members. In 1851 no less than 28,517 inquiries were answered; while in the preceding year the number had only been 7573—"showing the utility and practical value of such a Co. in commercial enterprises."

In 1850 there was pub.: *A Review and Synopsis of the Mercantile Guarantee Sos. estab. on the Continent, practically applying the principle of Ins. to Commercial Transactions.* From this we have already quoted.

In 1850 the *Commercial Debt Ins. Co.* was projected, with a proposed cap. of £500,000 [power to increase to 2 millions]. The outline of the scheme was as follows:

The directors proposed to issue pol. of indemnity to traders against a moiety of the loss arising from the failure of their debtors, on such ordinary commercial risks as the directors might deem eligible, and at rates of prem. commensurate with the several risks, with the view of ultimately extending ins. to entire debts, as the bus. and prospects of the Co. might progress and circumstances justify. The arrangements for effecting this contract were to be, both with insurers and insured, "as simple and expeditious as the ordinary routine of a banking account, or any other form of ins."

Merchandise and Manufacturing Houses in every branch of trade might have the floating balances of their accounts current, including bills of exchange, as well as open accounts, protected by the guarantee of this Co., to an extent equal to their own risk;

Retail Dealers desirous of opening or continuing accounts current with wholesale houses of first-class respectability would find themselves thus enabled to purchase from the best markets to much greater advantage, by being enabled to furnish a guarantee for a proportion of the liability incurred.

Pol. were to be granted, either for single transactions, or for specific sums, and fixed periods, to cover to the extent specified the bona fide transactions of the debtor with his creditor.

Claims arising under these pol. were to be settled for at the periods, and on the conditions stipulated, and every facility was to be afforded for prompt settlements.

Rate of prem. had been already fixed on a graduated scale, on such terms as would "give satisfaction to the public, and afford ample remuneration to the Co."

Rate of Exchange—It was to form no part of the ordin. bus. of this Co. to guarantee a B. of exchange per se, for the purpose of facilitating its discount—

—such a process might have the effect of creating artificial paper—it would therefore be sufficient for this purpose to secure the transactions on which the B. of exchange were founded, "thus rendering these documents more secure in the hands of the moneyed interest."

The directors further proposed to purchase *reversions of dividends* arising on debts which had been proved at the Courts of Bankruptcy, and of those which had been admitted under deeds of composition, inspection, and assignment, as well as to grant *guarantees* to debtors, for the purpose of winding up their estates under offers of composition.

Creditors who had had the misfortune to become claimants on bankrupt estates might procure from this office forms of affidavit for proof of debt, and may receive for their claim, when proved, a *present* payment in exchange for an assignment of their future dividend.

Debtors, whose state of affairs and bal.-sheets were completed, and whose creditors had assented to an offer of composition, might have their composition guaranteed by this office in exchange for an assignment of their whole assets.

No inst. at present existed by which temporary embarrassments may be relieved or prevented by timely assistance of this description.

These were all the leading features. Temporary offices were opened at 2, Royal Exchange Buildings, E.C.; but the project did not mature. No names of the parties promoting the Co. were published.

Notwithstanding the variety and ingenuity of the several projects already noted, the bus. of Commercial Credit Ins. or Guarantee had not at the commencement of 1852, so far as we are aware, been brought into actual practice in Gt. Brit.; but the time had now arrived when the bus. was to take form and shape, at least by way of experiment. In that year two projects were set on foot, each of which became actually estab. These were: (1) *Commercial Credit Mut. Assu. Asso.*; (2) *Solvency Mut. Guarantee*. Each of these asso. we propose to pass in review in some detail. It will be again noted that *two* projects were simultaneously set on foot.

The scheme of the *Commercial Credit Mut.* is drawn from its prosp. but condensed where possible. The objects of the asso. were—1. To reimburse to the assured commercial losses sustained by them in consequence of non-payment by debtors who are traders. 2. To give immediate assistance in recovering debts due to them, and generally on their behalf to save time, trouble, and expense in the investigation or winding up of the estates of debtors, whether bankrupts or otherwise, and to effect the speedy payment of dividends. 3. To make to the assured advances, where losses have occurred, with a view to prevent immediate embarrassment, or ultimate failure. 4. To afford information to the assured respecting the commercial stability of traders, to whom they may propose to give credit.

The Asso. proposed to accomplish these objects by uniting its members in a system of mut. assu. against the misfortune, bad faith, undue speculation, or fraud of others. The principles of assu. are now well understood, but had never previously, in this country, been brought to bear upon commercial losses of which the ann. amount is such as urgently to call for some remedy.

The statistics relating to commercial transactions may be as safely relied upon as those relating to fire and life, with which we have been so long familiar. The commercial losses sustained in any number of years bear a given proportion to the gross returns, or amount of bus. done. "An average per-centage of loss may be thus ascertained, and a prem. upon those returns would create a fund from which the assu. might be reimbursed such losses." A closer analysis would indicate the proportion borne by the various different trades, or occupations, and so modify, in similar proportions, the prem. to be paid. "There is, therefore, no practical difficulty in applying the principles of assu. to the primary object of this So."

The general rules of the So. would provide—1. That the prems. paid by the assu., and all debts recovered, shall be exclusively devoted to the payment of claims for losses, which claims will be subject to the decision of a council of reference, *annually chosen by the assu.* 2. That the assu. shall pay, on account of the expenses, a fixed limited sum ann., to be designated the management commission: in return for which, the shareholders covenant in their deed, to provide an efficient man., accountant, clerks, and offices in which to transact all the bus. of the So., and to defray all the expenses attending the same. 3. The prem. fund, and the reserved fund to be accumulated from it, are thus secured from any depreciation by careless management, or diminution by reckless expenditure; and the immense and very complete machinery of the So. will be at the disposal of the assu.

After payment of the losses of the year, one moiety of any surplus of the year's prem. to be applied rateably in *reduction of the next year's prem. of such of the assu. whose losses have not amounted in such year to the prem. paid by them*; and the other moiety to be applied to create a reserved fund, "from which to afford to the assu., at a limited rate of int., such assistance as, in the time of commercial pressure, their council may approve." When this reserved fund reaches a limited amount, all the surplus of the year's prem. to be applied in reduction of the next year's prem., as before mentioned; and at the end of each term of 5 years, if the reserved fund exceed such limit, all the excess to be divided among the assu. in the same proportion as the prems. paid by them exceed the losses admitted on each pol. during such 5 years. Thus would be secured to each assu. the benefit of his individual prudence by rendering the prem. payable by him virtually dependent upon a self-adjusting sliding scale regulated by his own losses.

The rules had been framed with a view:

1. To prevent all fraud or improper speculation on the part of the assured.
2. To afford to the assured the utmost possible convenience, and require from them the least possible

sacrifice,—by allowing the prem. to be paid by half-yearly instalments, at the end of each six months, instead of being paid in advance,—by requiring no payment from the assured whose previously-admitted losses equal or exceed the amount of the prem.,—by paying to them at the end of the first half-year an instalment not exceeding 40 p.c. of any admitted loss, the remainder of which will be paid at the end of the year,—by providing that any sum received from a debtor of the assured shall immediately be handed to him, in part payment of any claim made by him in reference to such debtor,—and by limiting the liability of the assured to the payment of the prem. and man. commission only.

3. As between the assured themselves, to restrict individual rights only so far as may be essential to promote the mutual advantage of all, with which view it is provided that the assu., on making any claim, shall give the So. full power, in his name, to act against the debtor. That such power shall be acted upon, for the exclusive benefit of the funds of the assu. That the assu. shall not take any proceedings to affect the commercial credit of the debtor, without the sanction of the So. That no claim for less than £5 be sent in. That to p.c. of all admitted claims be retained and added to the reserved fund for the time being. And to prevent the waste of funds by needless litigation, the assured will be bound in all matters by the decision of the Council, whom they themselves appoint.
4. To afford to the assured, whenever desired, the full advantage of the information that will be acquired by the So. as to the commercial stability of traders throughout the U.K.

The great consolidation of credit effected through the agency of this So. the directors considered would not only promote the security of the assured, but in time beneficially affect the whole trading community ; on the one hand, by averting with timely assistance the wide-spread calamities arising from unforeseen and unavoidable individual misfortune ; and on the other, by subjecting fraudulent traders to an amount of exposure and legal pressure, which could seldom, if ever, be accomplished by individual creditors. "A so., founded in Paris in 1848, with the same objects, and upon the same principle, has already achieved the most remarkable success, and been productive of extensive advantages to the commercial community,—the leading mercantile houses in France being enrolled upon the list of its assured."

The rates of prem. to be paid by the ins. are shown in the following T. of classes :

1st Class ...	2s. to 8s. p.c.	on returns	} For merchants selling to manufacturers, and manufacturers selling to wholesale houses.
2nd Class ...	2s. 6d. to 10s. p.c.	ditto.	
3rd Class ...	3s. to 14s. p.c.	ditto.	
4th Class ...	3s. 6d. to 16s. p.c.	ditto.	} For wholesale houses selling to wholesale houses.
5th Class ...	4s. to 16s. p.c.	ditto.	
6th Class ...	5s. to 20s. p.c.	ditto.	
7th Class ...	6s. to 25s. p.c.	ditto.	} For wholesale houses and manufacturers selling to retail shopkeepers.
8th Class ...	7s. to 30s. p.c.	ditto.	
9th Class ...	2s. and upwards p.c.	ditto.	
10th Class ...	10s. and upwards p.c.	ditto.	} For assurances effected on average losses, under Art. 34, Rules.
			} For all persons not assured in any of the previous classes.

N.B.—The higher rate of prem. in each class will be chargeable up to the 31st of Dec. in the year in which the policy is made, and the assured will be classified according to the terms of credit and the nature of business. Such rate of prem. is subject to diminution upon the principles hereinbefore mentioned.

By art. 34 of rules, the assured who declares for £50,000 and upwards, may, by special arrangement, pay an ann. prem. amounting to 10 p.c. less than the average of his annual losses for the previous five years.

The above rates had been certified by Mr. Alex. Glen Finlaison as sufficient for the purpose in view.

The rate of management commission was to be 15s. upon every £1000 declared, up to the sum of £25,000, and 12s. 6d. for every £1000 beyond that sum and up to £50,000 ; and 5s. for every £1000 beyond such last-mentioned sum up to £500,000 ; and 2s. 6d. for every £1000 beyond such last-mentioned sum ; provided always that for the first year the rate of the man. commis. should be 20s. upon every £1000 declared, up to £50,000.

The *Solvency Mutual* (1852) set forth the following details in its prosp. : An extensive analysis of the statistics of bankruptcy and insolvency has demonstrated that the principles of assu., which have been applied with perfect success to the contingencies affecting life and health—to fire and marine calamities—to agricultural and animal casualties—to accidents to the person—and to the guarantee of fidelity, may, with equal advantage and safety, be extended to the reimbursement of losses resulting from insolvency. These losses are estimated to amount annually to the enormous average of £65,000,000, presenting a vast field for the application of the proposed guarantee of solvency.

The immense advantages attending the assu. of debts will be the more apparent, when we consider that a first loss occasions many others, destroying that confidence and credit which are essential to the interests of commerce, and involving even the most prosperous and prudent traders.

The objects of this Co. are no novelty in continental countries, where the assu. of debts, bills of exchange, etc., has been long and successfully practised by bankers and others ; and since the present Co. was projected here, three institutions for the same purpose have been put into active operation in Paris, which, although started upon mut. principles, without cap. or other monetary guarantee, have prospered through the late scarcely to be paralleled series of commercial calamities, and social and political revolutions ; and while they have proved of the greatest benefit in the suppression of fraudulent trading, and by

extensive operations have succeeded in reducing the annual average of insolvency, have also, after distributing a moiety of the profits among their members, been enabled to accumulate large reserved funds. In consequence also of their great success, several other debt assu. cos. have been lately estab. in France, and others are in progress.

The business of this Co. will be divided into three departments: (1) *The Debt Guar. department*; (2) *The Rent Guar. department*; (3) *The Dividend and Composition Guar. department*. The RENT GUAR. department will be spoken of under that head.

The operations of the *Debt* department comprise:

1. *The guarantee of gross ann. returns* for a certain term, at an average rate of subs.
2. *The guarantee of special risks* upon a proportion of a trader's returns, or individual or single transactions, including bills of exchange, promissory notes, bonds, and other monetary risks.
3. *The collection, recovery, and purchase of debts*, and other approved monetary securities, and also of dividends arising upon debts proved under bankruptcy or insolvency, or admitted under any deed of composition or assignment.
4. *The granting of temporary advances* in times of commercial pressure or emergency to members or debtors whose solvency the Co. has guaranteed, and the discount of bills, notes, or other securities, granted by the Co.
5. *The formation of a reference department*, by the collection of accurate information for the gratuitous use of members assured in the gross (and of other members upon payment of a fee), respecting the various systems of commercial fraud, the practices and persons of swindlers, and of all parties unworthy of credit.

The rate of the subs. will be determined according to the nature of the trade and credit given; the amount and term of the guarantee, and the other particulars, rendered in the form of proposal.

TABLE OF SUBSCRIPTIONS FOR THE GUARANTEE OF GROSS ANNUAL RETURNS.

1. Merchants, brokers, and manufacturers selling to merchants, manufac., and others:

Class of Risk.	A.	2s. 0d. to 5s. 0d.	p.c. on gross returns.
"	B.	2s. 6d. to 7s. 6d.	p.c. on ditto.
"	C.	3s. 0d. to 10s. 0d.	p.c. on ditto.

2. Manufacturers and wholesale houses selling exclusively to wholesale houses:

Class of Risk.	D.	3s. 6d. to 15s. 0d.	p.c. on gross returns.
"	E.	4s. 0d. to 17s. 6d.	p.c. on ditto.

3. Manufac. and wholesale houses selling to wholesale houses, retailers, and others:

Class of Risk.	F.	5s. 0d. to 20s. 0d.	p.c. on gross returns.
"	G.	6s. 6d. to 25s. 0d.	p.c. on ditto.
"	H.	7s. 6d. to 30s. 0d.	p.c. on ditto.

These subs. include all charges of management. The Rules provided:

1. That if a trader proposing for a guarantee has not been in trade for the term of three years, or does not come within the scope of any of the above classes, the board of directors shall in such case have power to determine the rate of subs.
2. The guarantee of gross ann. returns embraces the guarantee of the *total risks* of a trader, at an average rate of ann. subs. for a term of one year and upwards; such subs. falling or rising, according to the claims made for losses in each year.

Example.—Suppose a trader proposing to guarantee his gross ann. returns, amounting to £100,000, be accepted, and guaranteed for a term of three years, and it is agreed that the rate of subs. shall be 10s. p.c. This subs. will be charged on each year's transactions; and if the claims made in any year do not exceed three-fourths of the ann. subs. payable thereon, then such rate of subs. by the ann. division of profits may be reduced to not less than the lowest rate of the particular class of risk upon which such guarantee may have been granted, such reduction being made by way of set-off against the subs. of the following year; or should the claims on such guarantee exceed in any year three times the amount of the ann. subs. payable thereon, such subs. (for that year only) will be proportionately raised according to the rules, by which arrangement, on the principle of a sliding scale, the trader parti. in the profit or loss of his own transactions; this fluctuation operating as an encouragement to prudence, or as a fine upon carelessness.

The subs. on gross ann. return guarantees are payable in the following manner. The whole will be due on effecting the guarantee, but the members are only required to pay down a portion thereof, equal to 2s. 6d. in the pound on such subs. (unless they prefer to pay any larger part or the whole amount); credit being given for the balance at int. at the rate of £5 p.c. p.a., in which case the whole or any portion thereof, with int., may be called up by resolution of the directors, of which not less than 14 days' notice shall be given.

A trader proposing for a guarantee for a term of three years and upwards might have his ann. subs. assessed at from 5 to 10 p.c. less than the average ann. losses of such trader for the previous 5 years.

The guarantee of special risks comprehends:

A floating guarantee (with power of withdrawing and substituting one debtor for another) for a specified amount and period, and at an average rate of subs. upon the solvency of any present or future debtors of the member guaranteed, such debtors to be named from time to time, during the term of guarantee, so that such member may have guaranteed at one and the same time a certain number of debts not exceeding in the aggregate the total amount for which such guarantee shall be granted.

A special guarantee of any specified person or persons for agreed amounts and periods, at rates of subs. varying in each case, including bills of exchange, promissory notes, bonds, and other monetary risks.

The subscriptions on special guarantees (*floating or otherwise*), are payable in the following manner:—The whole may be paid down if preferred; or if the term of guarantee be a year or beyond, by half-yearly or quarterly payments; or if the term of guarantee be six months or beyond, but less than a year, the one-half down, and the remainder in three or four months as agreed; but if the term of guarantee be less than six months, the whole of the subs. must be paid down at the granting of the guarantee, and in all cases where credit is given for any portion of the same, the members shall pay int. thereon at the rate of 5 p.c. p.a.

The cost of guarantee (say the promoters) cannot operate against the adoption of these

advantages, by reason of the amount of subs. paid or agreed to be paid, for the risk which attends all commercial sales is a constant element in the regulation of prices, and as every enhancement in the price of goods sold on credit is a prem. for self-assurance, such amount, or a less sum in the shape of subs., being paid to this Co., who then become liable for the sum guar., will confer upon a member the advantage over a non-member of perfect security from loss, and therefore superior power of competition.

The *Dividend and Composition Guarantee* branch is thus introduced and explained :

The inadequacy of the present legal means for the management of a bankruptcy, with the frightful waste of property attendant thereon, in small estates consuming the *entire assets*, and in all a large proportion, are too well known to require comment. To avoid these anomalies of the Bankruptcy Court, it is a frequent practice with persons in embarrassed circumstances to call a meeting of creditors, at which, upon investigation of the insolvent's affairs, a composition is accepted in discharge; but difficulties and dissatisfaction often arise owing to the time that must necessarily be consumed, and the uncertainty that generally attends the effectuation of such arrangements, to the mutual detriment of creditor and debtor. These evils are removed at once by this Co. *granting an immediate payment or guarantee of the dividend or composition*, and in many cases also *allowing the debtor to retain possession of his stock and premises*. The operations of this department comprise :—

1. The guarantee of the payment of the debts or liabilities of a debtor in full, or such a rate of composition in full discharge thereof as an investigation of the estate and assets of such debtor will warrant; payment to be made by instalments extending over any period, or other arrangements, as may be agreed upon and sanctioned by the creditors; such arrangement being effected by a realization of the said estate and assets, or else upon such debtor obtaining satisfactory securities, either by bills of exchange, promissory notes, or otherwise. 2. *The immediate payment of the whole or any part of a composition previously guaranteed by the Co.*

Finally : "The constitution of the Co. being purely mutual, the whole of the profits will be divided among the members, according to the rules—one-half to be applied ann. in reduction of future subs., and the remaining half to be applied in the formation of a reserved fund. The excess of such reserved fund beyond the sum of £50,000 will be divided in like manner triennially."

The following is the form of "agreement" by way of pol. used by the Asso.:

A. No. 1.—Gross Ann. Returns.

Guarantee No. B.

Term years.

Gross Ann. sum, £

Ann. Consideration, £

Class of Risk, by rate, £ p.c.

Mem. of Agreement made the . . . day of . . . 18 . . . between the undersigned three Directors of the *Solvency Mut. Guar. Co.*, on behalf of the said Co., of the one part, and . . . , trading under the firm or style of . . . , members of the said Co., hereinafter designated as the said members, of the other part. Whereas the said members carry on at . . . the bus. of . . . , and have delivered into the office of the said Co. a statement and declaration in writing, dated on the . . . day of . . . 18 . . . , signed by the said members, containing a statement of the amount of their bus. and losses therein during the 3 years preceding such declaration, and of such other particulars as are required by the rules and bye-laws of the said Co.; and the said members are desirous of being guar. by the said Co. in respect of their future ann. sales, according to the terms of the D. of Sett. and the rules and bye-laws of the said Co.; and subject also to the several provisions hereinafter contained and hereon endorsed. And whereas the said members have contributed to the funds of the said Co. the sum of £. in part payment of the consideration for this guarantee, and have further agreed to pay to the said Co. the sum of £. being the remainder of the consideration chargeable thereon, together with int. in manner hereinafter mentioned: Now it is hereby witnessed, that in consideration of the said sum of £. so paid and agreed to be paid by the said members as aforesaid, it is hereby agreed by and between the said members and the said directors on behalf of the said Co. in manner following, that is to say, that if the members shall pay, or cause to be paid to the said Co., the remainder of the aforesaid consideration with interest thereon, in such manner and at such times as are hereinafter mentioned, and shall fully comply with the provisions of the aforesaid D. of Sett., and the rules and bye-laws for the time being of the said Co.; and further, if the total amount of the sales made by the said members in any or any one of the years to which this guar. is hereinafter made to extend shall not exceed £. then and in such case the subscribed funds of the said Co. standing to the credit of the debt guar. fund mentioned in the said D. of Sett., after satisfying all guar. granted by the said Co. previously payable, and all other prior charges on such fund, shall, according to the provisions of the said D. of Sett., rules, and bye-laws, be subject or liable to pay or make good to the said members, their executors, etc., nine tenths parts of the loss or damage to be occasioned to the said members in respect of any goods sold by the said members during the term of two years, from the . . . unto the . . . by reason of any or any one of the purchasers of such goods being duly found and declared bankrupt, or taking the benefit of any Act for the benefit of insolvent debtors, or making an assignment for the benefit of their or his creditors, or compounding with them under the sanction of the said Co., within such time aforesaid and during any future period in respect whereof the said members shall contribute to the funds of the said Co., and the said Co. shall consent to receive further payments at the rate aforesaid: but subject always to the provisions contained in the said D. of Sett., rules, and bye-laws, and also to the provisions hereinafter contained and endorsed hereon, etc. And the said members hereby agree to pay to the said Co. the further sum of £. being the remainder of the ann. consideration payable hereon up to the 1st Dec. 18 . . . , and also the sum of £. in each and every succeeding year during the term of this guar., at the times and in the amounts hereinafter mentioned, etc., with int. upon such respective sums after the rate of £5 p.c. p.a. from the date hereof to the time or respective times when such sums shall be paid. In witness whereof, etc.

The main conditions of the pol. were :

4. Every guar. shall be made for a specific term, but all guar. upon gross ann. returns, floating risks, or rents, whatever may be the orig. term of the same, shall upon the expiration of such orig. term be treated as a renewal of the contract of the like nature and conditions, unless either the member interested therein or the board of directors shall give two calendar months' notice of an intention not to renew the same.

6. All guar. or contracts shall be dated on the day when the same shall be completed and issued by the Co., and shall take effect from such date, unless some other time shall, under the especial authority and sanction of the board of directors, be expressed or indorsed thereon. Provided, however, that a member guaranteed upon gross ann. returns or floating risks shall have no claim for any loss accruing within two calendar months of the date of such guar.; but such proviso shall not extend to any renewal of guar. or contract where the membership shall have not been interrupted.

In 1853 the *General Indemnity Ins. Co.* was founded, for the purpose, *inter alia*, of carrying on the bus. of guarantee against losses arising from robberies, forgeries, frauds, debts, insolvency, and non-payment of rent." The portion of the scheme relating to the guarantee of debts was set forth as follows:

The principle of assu. against commercial losses has been already applied in this country. . . . The average of such losses, spread over a number of years, gives an average per-centage upon the cap. employed to the full, as constant as the averages upon which F. assu. is based. The immense amount of these losses, which have been estimated at £65,000,000 p.a., shows the necessity of providing against them by extensive and well-considered combination.

The objects purposed by this Co. in this department are—1. To make good commercial losses arising in consequence of non-payment of debts by debtors who are traders. 2. To afford pol.-holders assistance in recovering debts, and winding up insolvent and bankrupt estates. 3. To make advances in order to prevent the immediate effects of losses included in the pol.

The rates of prem., of which fuller particulars are given in the special prosp. of this department, are divided into 10 classes, and vary from 2s. to 30s. and upwards p.c., the differences being determined by the nature of the trade, and length of credit given. Each pol. is granted for a term not exceeding three years.

There was no essential difference between the details of classification in this Co. and the preceding. The Co. came to a somewhat disastrous end in 1857, but whether through this or any other special branch of its bus., did not appear.

In 1853 Mr. Francis pub. his *Annals, Anecdotes, etc., of Life Assu.* He noted the formation of these Commercial Credit Ins. Cos. He said, "Within the first nine months insurances have been effected of more than £3,000,000." Then he adds:

The theory of chances is as applicable to commercial transactions as it is to life. The close observer will not have failed to notice that the periodical epidemic—whatever form it may have assumed—has its representative in the commercial crisis. Every 6 or 7 years mercantile epidemics—analogue to the cholera, the influenza, or the typhus, of an unhealthy season—which seem to defy all calculation, and to level the lofty as well as the low—revolutionize our money system. So fixed have they become in their appearance and re-appearance that they have ceased to be exceptional; there is now plenty of information on which to base some estimate of the ann. losses of special classes from bad debts.

We do not think his reasoning makes good his proposition.

In Oct. 1854, a firm of merchants in the City was charged at the Central Criminal Court with attempting to obtain from the *Commercial Credit Mut.* the sum of £299 9s. 9d. "by false and fraudulent pretences." The case was very complicated, and tended to show the risks to which the bus. was exposed. In the end a verdict of "not guilty" was returned by the jury.

In 1856 the *Solvency Mut.* underwent a change of constitution, and became merged into the *Mercantile Guarantee and Assu. Co.*, which had been projected and in part estab. in 1854, prob. in view of the fact that not only the guarantee, but the actual use of some cap. was required in the conduct of such a bus. This will presently more fully appear. In the mean time, in something less than four years, the *Solvency Mut.* had effected commercial guarantees, covering £22,000,000; its ann. income had reached £32,000, and it had paid in claims £112,000. Hence not only a considerable bus., but a large experience, had been obtained. The *Commercial Credit Mut.* appears also to have passed out of existence this same year, 1856.

The *Mercantile Guar. and Assu. Co.* had, as stated, been projected in 1854, no doubt in view of the change actually made in 1856. The Co. had authority to raise a cap. of £250,000; but it had other branches of bus. than that immediately before us, viz. L. ins. and Fid. guar. The "Debt Guarantee Department" was held prominently forward. The prosp. said:

The Co., as respects this branch of bus., is not to be regarded as a new inst., but simply as an extension and re-construction, on the proprietary system, of the *Solvency Mut. Guar. Co.*, which, since its complete regis. in 1852, has, even under the limited powers afforded by its purely mut. constitution, and in the face of vast difficulties, achieved a position and attained an amount of bus. which it is confidently asserted has never been equalled by any inst. within the same time. This success, it is believed, will be greatly augmented by the employment of share cap. in making advances to pol.-holders on account of bad debts *immediately* they occur; in discounting and purchasing dividends and compositions upon embarrassed estates; and in discounting the trade bills of those who are first covered by the Co.'s guarantee.

Mr. Charles Stuart Cansdell remained the Man. of the enterprise. By 1858 the bus. of the new Co. had assumed the following proportions:—The commercial guarantees effected amounted to £4,200,000; the ann. income was £12,000; the claims paid were £7,000. The bus. was conducted more cautiously than it had been in the first instance.

In 1858 the case of the *Solvency Mut. v. York* came before the Court of Exchequer. The defendants had delivered to the so. a declaration in writing containing a statement of the amount of their bus. and losses thereon, during the three years preceding, and that they were desirous of being guaranteed by the so. in respect of their future ann. sales in their bus. according to the D. of Sett. of the so. and the rules and bye-laws thereof. The so. had agreed to enter into the guarantee upon the terms in the pol. mentioned. It was agreed between the defendants and the so. that if they should pay the sums thereafter

mentioned, and comply with the provisions of the D. of Sett., the subs. funds of the so. should be liable to pay the defendants nine-tenths of their losses in respect of goods sold by them during the term of three years and one month from the 1st Dec. 1853, to 31st Dec. 1856, and during any further period the defendants should contribute to the funds of the so., and the so. should consent to receive further payments; but subject always to the provisions contained in the D. of Sett., and also to the provisions thereafter contained and indorsed thereon. One of the provisions indorsed on the agreement was that every guar. upon gross ann. returns should, from the expiration of the orig. term, be treated as a renewed contract, unless either the member interested therein or the board of directors should give two calendar months' notice not to renew the same. The ann. prem. to be paid was £43 13s.; the ins. was upon gross ann. returns; no notice had been given on either side not to renew. The breach of contract now before the Court was the non-payment by the defendants of the prem. for 1857, and part of the prem. for 1858. The defendants pleaded that from and after 31st Dec. 1856 they had refused to continue membership; also that from the 31st Dec. 1856 the so. was amalg., "and the bus., funds, and property of the so. were trans. to another co."—*Held*, that the stipulation for notice was part of the contract; and as no notice had been given, the agreement continued for another three years; and as regarded the amalg., there was nothing to show that the so. had therein exceeded its powers.

In Jan., 1860, an order was made for winding up the *Solvency Mut. Guarantee*, the affairs of which had never been closed. There then arose a somewhat serious state of affairs. The asso. was mut.: all the pol.-holders were partners. The question of liability came before the Courts of Equity in 1862, in *Hawthorn's* case, heard before V. C. Wood. The point turned mainly upon the 4th condition of the pol. already given; and while in this particular instance it was found that the pol.-holder had given sufficient notice of withdrawal from his contract, and had thereby escaped being a contributory by not being a pol.-holder at date of winding up, the principle of the liability of the actual pol.-holders was not attempted to be controverted.

In 1861 another case came before the Court of Exchequer, on demurrer, relating to the affairs of this Asso., viz. *The Official Man. of the Solvency Mut. Guar. Co. v. Froane and another*. The question here also turned upon condition 4. It was held that in the event of no notice being given to terminate the contract, the guarantee became a renewed contract for only one period of two years from the expiration of the original term, and was not from time to time renewable beyond such one renewal.

In 1868 the *Commercial Indemnity Corp. of Gt. Brit.* was founded; but its object was more particularly to ins. *Trade Profits* in the event of loss by fire or explosions. We shall therefore speak of this project in detail under PROFITS, INS. OF.

In 1871 the *Debt Ins. So.*, "for wholesale houses only," was founded. It presents some remarkable features. The prosp. says:

The benefits and advantages conferred upon all classes of the community by the ins. of fire and life are now open to wholesale houses by the ins. of trade debts. The method of ins. is precisely analogous to that of F. assu. It secures the due punishment of fraud against creditors, and the recovery of their property in the most efficacious manner.

Then we come to the more specific purposes:

The object is to ins. creditors a cash dividend of a certain amount in the pound at the time of a debtor's failure; and, in addition thereto, all dividends which an estate may yield beyond such cash dividend.

Its advantages are that—1. Creditors obtain at least 10s., 12s. 6d., or 15s. in the £ in cash at the time of a debtor's failure; and all dividends which the estate may yield beyond the amount so paid. 2. The ins. will not interfere in any way with trading transactions between debtor and creditor. 3. Creditors avoid all costs and charges for legal proceedings, etc., in the recovery of their debts and dividends.

Its terms are—1. Payment by the creditor of a separate prem. for every debt ins. A "debt" is the amount owing to the creditor at the time of failure. It may be the result of any number of transactions, but must not exceed the sum assu. 2. Debts from £10 to £200 may be ins. from one month to a year, and may be increased or decreased at any time.

Insurance will be limited at present to accounts in the following counties:—Beds, Berks, Bucks, Cambridge, Essex, Hants, Herts, Hunts, Kent, Leicester, Middlesex, Norfolk, Northampton, Oxford, Suffolk, Surrey, Sussex, and Wilt.

Premis. for 12 months ins. on £10, 12s.; on £20, 10s.; on £30, 25s.; on £40, 31s.; on £50, 37s.; on £60, 43s.; on £80, 55s.; on £100, 67s.; "for traders of moderate standing; with higher and lower rates for others, according to the circumstances of their position, and the rate of dividend ins."

Next we have the "conditions of ins.," which are as follows:

1. A "debt" is the amount owing to a creditor at the time of the debtor's failure. It may be the result of any number of transactions, but must not exceed the sum ins. 2. All notices of failure must be sent in forthwith upon their being received. The proof of debt and proxy form, duly filled up and sworn, must follow at an early date, prior to the meeting of creditors. 3. On the payment of a claim the creditor shall sign an undertaking to execute any deed, power of attorney, or authority that may be required, by or on behalf of the So., for the recovery, general management and compromise of the debt, and to recover, receive and retain all dividends payable in respect of the debt upon which such claim is paid, subject to all claims recovered beyond the amount guaranteed being paid over to the creditor when recovered; the creditor shall not be liable for any expense in the preparation of the said deed, power of attorney, or authority. 4. Interest at the rate of 20 p.c. p.a. shall be payable to the So. by the creditor on all dividends, and on all securities for dividends, which he may have received in respect of any ins. debt, until the same shall be paid over to the So. 5. Should the amount owing to the creditor at the time of failure be in excess of the sum assu., one-third of such excess shall be deducted from the sum payable under the ins. 6. To meet the case of a bill of sale or other preferential security, an equitable proportion of the amount of the prem. paid may be returned at any time,

and all responsibility for any debt contracted after that date be declined. When an ins. is so declined, the goods supplied within the terms of the ins. will be still guaranteed. 7. If any other services than those of the assurers have been made use of for the recovery of any debt, no claim in respect of such debt will be admitted or paid. Creditors are liable to no costs or charges for the recovery of any debt or dividend. 8. No claim shall be paid in respect of any debt which shall have been allowed to remain more than one month overdue, without having been sent to the office for recovery. Nor if the debt be not sent in immediately a failure takes place, and the recovery thereof entrusted to the sole management of the insurers.

The following is the "form of proposal for the assu. of a debt" in use by this So.:

To the *Debt Ins. So.*, 40A, King William Street, London Bridge, E.C.

Date, . . . Christian and Surname of Debtor, . . . Address, . . . Amount of "Debt" to be Assured, £ . . . For . . . months. Amount now owing, £ . . . How much secured? £ . . . How much overdue? £ . . . How long overdue? . . . How long has the debtor been in business at his present address? . . . If in business previously, and where? . . . Has he ever failed? . . . When? . . . Where? . . . What was the dividend paid? . . . The following persons may be among his creditors, viz. :— . . . Proposed by M . . . of . . .

A payment of is. must be made with this proposal, which will be returned if the ins. be declined by the Society.

The three asso. spoken of in the early part of this art. as existing in France have some time since passed away. We have seen that at least one of them had undertaken to supply to merchants and others information regarding the credit of merchants and traders in different towns in France. The others prob. entered upon similar functions. It was this branch of bus. that completed their downfall. They were sued before the Tribunals of Commerce for damages in respect of wrong information furnished, and had repeated decisions against them. There have been estab. in more recent years several other asso. having analogous objects. We hope to supply some information regarding these under FRANCE.

The careful reader will not fail to observe the change in the practical aspect of the bus. which characterizes its later developments. The grand aspirations of theory have had to succumb to the stern realities of facts. The bus. is a most risky one, and instead, as was first assumed, of being able to protect the merchant and trader from the direct hazard of trading, by the asso. taking upon itself to indemnify the burthen of the loss, it seems that the most asso. of this character can accomplish is to mitigate disaster when it occurs, by making advances against the proceeds likely to be recovered from bankrupt and insolvent estates. Under this state of matters, the ins. portion of the project falls very much into abeyance. The fact remains that nothing but commercial *honesty* can insure commercial *credit*.

The following table, compiled from returns made to the House of Commons, shows that during 7 years of our most excited commercial history, the greatest fluctuations were experienced in 1864, when they were 17 p.c. below the average, and in 1868, when they were 25 p.c. above the average; the total of the fluctuations being 42 p.c.:

Year.	Total No. of Failures.	Population.	Failures to each 10,000 Pop.	Above the Average.	Below the Average.
1862	12,314	20,336,467	6.05	...	4
1863	11,486	20,554,137	5.58	...	11
1864	10,828	20,772,308	5.21	...	17
1865	13,509	20,990,946	5.43	...	13
1866	13,584	21,210,020	6.4	2	...
1867	15,906	21,429,508	7.42	18	...
1868	17,240	21,649,377	7.81	25	...

We observe that the directors of the *Debt Ins. So.* pronounce that "the elasticity of the principle of the assu. is equal to a much greater emergency." It might be so if the principle of *selection against the office* could be effectually guarded against.

The modification of the Bankruptcy Laws affects the apparent uniformity of results. The last new Bankruptcy Act—the 32 & 33 Vict. c 83—known as the Bankruptcy Act, 1869, came into force 1st Jan., 1870. The number of bankruptcies, as returned by the Comptroller in Bankruptcy, was only 1351, instead of many thousands, as in the preceding years. But then, during the year, no less than 4288 petitions for liq. by arrangement were presented; and 1616 deeds of composition with creditors were regis. Thus we have a total of 7255 "failures," or about one-half of the ordinary average. The liabilities in the 1351 cases amounted to nearly £8,000,000, and the assets were estimated as rather under £2,000,000. In nine cases, after paying law expenses and settling with preferential creditors, the trustees had no funds for dividends. The total amount received by the trustees in the 1342 cases was £1,109,947, of which £41,972 went in law costs.

From the Comptroller's rep. for 1871, we gather the following particulars. During the year there were 1685 petitions presented for adjudications of bankruptcy, and 1238 persons were adjudicated bankrupts. Besides this, 6290 persons presented petitions for liq. by arrangement, and in 2872 of these cases there was a resolution regis. for a liq. by arrangement. There were 2170 instances in which a resolution was regis. to accept a composition. Thus, there is a gross total of 6280 cases in which the affairs of a debtor have been wound up under the Act. From another part of the report is obtained the

following summary of liabilities and assets in bankruptcies, liquidations, and compositions with creditors :

Bankruptcies	...	...	Liabilities, £3,974,767	...	Assets, £ 554,770
Liquidations	...	...	" 6,549,892	...	" 2,454,310
Compositions	...	...	" 3,634,200	...	" 1,198,727
Total...			14,158,859	...	4,207,707

Out of 232 bankrupt estates closed in 1871, no fewer than 93 were closed without any dividend being paid to the creditors, and the rates of dividend in the other 139 were as follows:—Not exceeding 1s. in the £, 25; exceeding 1s., and not exceeding 2s. 6d., 35; exceeding 2s. 6d., and not exceeding 5s., 37; exceeding 5s., and not exceeding 7s. 6d., 11; exceeding 7s. 6d., and not exceeding 10s., 19; 10s. and not exceeding 15s., 6; 15s. and under 20s., 3; at 20s. 3. In the 93 estates closed in 1871 without dividends, the law costs swallowed up 51½ p.c. of the assets; other working expenses 30½ p.c. (of which 13½ represents the remuneration of trustees); bankrupts' allowances, 1½; "extraordinary outlay," 4½; and the claims of preferential creditors the balance.

We record these facts for the benefit of any future commercial credit ins. asso.

[BANKRUPTCY.] [BARGAINS.] [PROFITS, INS. OF.]

COMMERCIAL CREDIT MUT. ASSU. SO., founded in 1852, with an authorized cap. of £50,000, in 5000 shares of £10. The prosp. stated that the Co. was estab. on the principle of mutual indemnity, for the guarantee of debts, rents, bills of exchange, promissory notes, bonds, and other monetary risks, and also for the guarantee and liquidation of dividends and compositions upon bankrupt and insolvent estates.

We have already given a complete outline of its principal operations under **COMMERCIAL CREDIT INS.** The Co. passed out of existence in 1856.

COMMERCIAL DEBT INS. SO., projected in 1850, with a proposed cap. of £500,000, in 25,000 shares of £20. Power was taken to increase the cap. to £2,000,000. We have given a full detail of the project in our art. **COMMERCIAL CREDIT INS.** The Co. never matured; and the name of its projector did not transpire.

COMMERCIAL FIRE INS. CO., founded in Dublin in 1836. It returned for F. ins. duty in 1837 the sum of £419; and then appears to have discontinued bus.

COMMERCIAL AND GENERAL LIFE ASSU., ANNU., FAMILY ENDOWMENT, AND LOAN ASSOCIATION, founded in 1841, with an authorized cap. of £500,000, in 50,000 shares of £10. The prospectus said :

The immense success which has up to the present moment attended life offices in general has incontestably proved the substantial advantages they have offered to the assured, not only in money, but in a moral point of view: inculcating prudence and economy, with a becoming desire to provide, to the best of their ability, for that offspring with which the Almighty has been pleased to bless them. Yet although the value and importance of L. assu. is so continually set before the public, it is surprising how small a per-centage of the pop. of this vast metropolis has hitherto availed itself of its advantages, comforts, and security.

It must be remembered that the system of L. assu. is especially beneficial to every one dependent upon his own exertions for his income, and to all who have only a life interest in their properties. It is valuable in an eminent degree to every member of the community, by affording unerring means for providing for families after death. It enables individuals with fixed incomes, from whatever source they are derived, whether from Gov. or other situations, from pensions or annuities on their lives, to perpetuate them to their representatives—offers entire indemnity to creditors against loss by the demise of debtors—points out a ready mode by which trustees may, with perfect security to themselves, make advances under marriage settlements—secures the continuance of leases terminable upon lives and renewable by fine—attaches responsibility to personal security, thereby assisting individuals to obtain loans and guar. repayment—anticipates and altogether provides against the inconvenience and injury often occasioned by the withdrawal of cap. from bus., or the death or retirement of a partner. In short, it is available to persons in every profession, trade, office, or circumstance, under all the modifications and constantly occurring varieties of contingent interests dependent upon the duration of life.

The first Sec. of the Co. was Mr. Frederick Lawrence. He was succeeded in 1848 by Mr. James Daniel. In 1853 the bus. of the Co. was trans. to the *Lond. Assu. Corp.*

COMMERCIAL INDEMNITY CORP. OF GT. BRIT., LIM., founded in 1868, with an authorized cap. of £250,000, in 100,000 shares of £2 10s. The Co. was worked in connexion with the *Progress Ins. Co.* Its peculiar bus. was to insure by way of indemnity against the *Loss of the Profits or Gains, Income*, "or other equitable bus. of merchants, manufacturers, brokers, traders, etc., whose interests would suffer by the sudden calamity of fire, explosions, etc." We shall give a full detail of its bus. under **PROFITS (TRADE), INS. OF.** In 1869 the Co. was re-regis. for the purpose of enabling it to carry on the bus. of ordinary fire ins. In 1870 it passed into liq.

COMMERCIAL INS. CO. OF DUBLIN, founded in Dub. in 1799, for the purpose of F., L. and M. Ins. We have very few details concerning its hist. In 1808 it obtained a special Act. of Parl. 48 Geo. III. c. 96—*An Act to enable the Commercial Ins. Co. of Dublin to sue and be sued in the name of their Sec.* The preamble of this Act sets forth :

Whereas several persons have formed themselves into a so. or partnership in the city of Dublin, under the name of the *Commercial Ins. Co.*, and have sub. or raised considerable sums, in order to effect ins. in Ireland upon ships and merchandize against the perils and dangers of the seas, and also against fire and on lives, and to grant and purchase annu.: and whereas the public hath been greatly benefitted by the formation of such So. or partnership, with a competent cap. to carry on the same, and a considerable revenue is derived to His Majesty therefrom: and whereas difficulties have arisen,

and may from time to time arise, as well in recovering debts which are, or shall or may grow due to the said so. or partnership, called, etc., as in prosecuting persons who may steal or embezzle the property of, or who may commit or be guilty of any other offence against, or with the intent to injure or defraud the said so. or partnership, as, by law, all the several members, partners, or proprietors of and in such so. or partnership for the time being, must in such cases sue and prosecute by their several and distinct names and descriptions: wherefore, for avoiding and removing such difficulties, and for more easily carrying into execution the several undertakings hereinbefore mentioned; may it please Your Majesty, etc.

It was therefore and thereby enacted that actions might be brought in the name of the Sec.; but this was not to incorp. the said partnership, nor relieve the members thereof from liability.

The bus. and connexions of the Co. (very small) were trans. to the *Guardian* in 1827. **COMMERCIAL LIFE AND ANNU. CO.**, founded in Glasgow in 1821. We have no details concerning this Co. except that Mr. John Tennent was its Sec.

COMMERCIAL LIFE ASSU. CO., founded in 1856, with an authorized cap. of £250,000. The prosp. said:

Although the great principles of mut. assu. have been more rapidly developed during the last ten years than they had been for a century before, and the majority of the educated classes have acknowledged them to be the unailing means of providing against the numerous casualties of life to which all ranks of society are alike liable, it is nevertheless true that the proportion of those who have availed themselves of these advantages is infinitely small in comparison with the pop. It may have, perhaps, be difficult to trace the causes which have operated to prevent their more universal adoption, but it is certainly necessary that a L. assu. office should not only combine the most salient features of the system as hitherto employed, but endeavour to unite the interest of the assured with those for whose benefit the assurance is effected, in such a manner as to develop these principles in all their comprehensive and benevolent capabilities. This the directors of the *Commercial L. Assu. Co.* have endeavoured to accomplish, not merely for the purpose of increasing its bus., but in the hope that they may more widely extend the blessings of L. assu. by adapting their operations to the necessities of every class. The prudent and provident will at once admit the moral obligation resting upon them to secure for themselves and their families the advantages of L. assu.; but it is urged upon such that they should not be content with availing themselves of these benefits, but that they should lose no opportunity of impressing upon others their importance and advantage.

Eighty p.c. of the profits were to be divided among the insured, 70 p.c. by way of bonus, and 10 p.c. carried to benevolent fund. First division to be in 1857. Funds invested, £10,000. Non-forfeiture pol. Pol. indisputable, "except in cases of personation or proved fraud." Diseased lives. Half credit. Partnership ins. Annuities. Endowments. Loans. The Co. also had a T. for securing "fixed sums" of money at given periods, irrespective of L. ins., of which the annexed is an abstract:

Mr. Alfred T. Jay was Man. of the Co., and Mr. A. W. Ray "Country Man." The Co. on its formation took over the bus. of the *English and Cambrian*. In 1857 it took over the *General Indemnity*.

The Co. had various branches, viz. the East of England branch at Norwich, Mr. Orlando D. Ray, Man.; the North of England branch at Sheffield, Mr. Henry Back, Man.; the West of England branch at Exeter, Mr. George Risdon, Man.

In 1858 the bus. of the Co. was trans. to the *English Widows Fund*. This last-named co. was, in 1860, trans. to the *Brit. Nation*, and that co. afterwards being united with the *European*, the affairs of the *Commercial* have now to be finally closed under the European Arbitration Act.

COMMERCIAL LIFE INS. CO. OF SCOTLAND, founded in Glasgow in 1840, with an authorized cap. of £500,000. The Co. was conducted on the proprietary principle. It was sometimes called in its prosp. "The Commercial Life Ins. Annu. and Family Endowment Co." In the orig. prosp it was stated that to judge from the advertising columns of the newspapers alone, one might be led to conclude that there was no room left for competition in this department of bus.; but that all who had paid attention to the subject—even those who might have the deepest interest in existing concerns—were fully aware that many sources of profitable bus. were still unexplored, and that there was still a wide field open for the exertions of an influential directory, a large and respectable proprietary, and an efficient management. Mr. William Hunter was Man. of the Co.

In 1846 the bus. of the Co., which was not large, was trans. to the *Standard*. **COMMERCIAL TRAVELLERS.**—The *British Alliance*, 1868, had a scheme of ins. purporting to be specially framed for this important body. We have given full details in our hist. of that co. The accident ins. cos. meet the requirements of this class in a very special manner.

COMMERCIAL UNION ASSU. CO., founded in 1861, with a subs. cap. of £2,500,000, in 50,000 shares of £50—£250,000 paid up. Power to increase cap. to £5,000,000.

ANN. PREMS. TO ASSU. £100 CERTAIN
AT THE END OF A FIXED TERM.

No. of Years.	Annual Premium.	No. of Years.	Annual Premium.
100	£0 3 4	50	£0 17 10
95	0 3 11	45	1 1 8
90	0 4 7	40	1 6 7
85	0 5 4	35	1 13 2
80	0 6 3	30	2 2 5
75	0 7 5	25	2 15 0
70	0 8 9	20	3 14 7
65	0 10 4	15	5 7 8
60	0 12 4	10	8 14 8
55	0 14 9	5	18 17 0

EXAMPLE.—Ann. prem. to insure £1000 payable at the end of 99 years, £1 14s. 2d.; 75 years, £3 14s. 2d.; 50 years, £8 18s. 4d.

This Co. originated out of the circumstances which followed the great fire in Tooley Street in that year, and which will be recounted in detail in our hist. of FIRE INS. It will be sufficient to state here that the fire occurring on the 22nd June, the associated fire offices took immediate steps for increasing (in some cases very considerably) the premiums on mercantile risks, and also demanded certain conditions regarding stowage of goods, etc., to be observed. The merchants of Lond. signed a requisition to the Lord Mayor to convene a meeting at the Mansion House to consider the subject. The meeting was convened, and held 25th July, and a committee was appointed to consult with the fire offices, and endeavour to promote a readjustment of the points in dispute. The next step of which the public became cognizant was the issuing of the prosp. of this Co., which tells its own tale as follows :

The committee of merchants, brokers, and others, appointed at a public meeting held at the Mansion House, on the 25th July, 1861, to consult with the combined F. ins. offices relative to the readjustment of their greatly-increased rates of ins., *have decided upon the estab. of an independent co.* Powerful support has been already obtained from the various interests represented at that meeting, and a provisional board has been formed from leading commercial houses and others, who by their influence and extensive connexions at once secure to this Co. a large amount of profitable bus.

The first principles of the Co. will be *the estab. of an equitable classification of risks*, as regards both *merchandise and warehouses, and more liberal arrangements than are now attainable upon floating and short-time pol.* A scale of rates will be adopted, which, while fully remunerative, shall be sufficiently moderate to encourage a universal habit of ins. *It is intended to reserve a per-centage of profits for periodical division amongst insurers.*

The Co. will undertake the ins. of houses and their contents at equitable rates—this class of bus. having long proved a large source of profit to the existing offices.

The Co. will be strictly independent in its operations, and in pursuance of the comprehensive principle on which the board has been constituted, will address itself to every class of insurers.

The principle of limited liability will be extended to all insurances effected with the Co., by the introduction of the usual clause limiting the amount of each shareholder's responsibility.

Power will be taken in the D. of Sett. (with the consent of a meeting of shareholders) to extend the operations of the Co. to life and marine bus., should it hereafter be thought desirable to do so.

The Co. was prov. regis. under its present name on the 13th August, 1861. Very shortly after that there was a rumour (which we believe had some foundation) that a negotiation was on foot to merge the new enterprise into the *Liverpool and London Co.* ; but this project went off.

The D. of Sett. of the Co. is dated 28th Sept. following, and recites :

Whereas the subs. have agreed to form themselves into a joint-stock co., for the carrying on for gain and profit the bus. of ins. against loss or damage by fire, storm, or tempest, and matters connected therewith, and all other bus. of a F. ins. office, and the doing of all things which the Co. may think incidental or conducive thereto ; and if and when the Co. shall think proper the carrying on of the bus. of assu. on lives and survivorships and matters connected therewith, and all other bus. of a L. assu. office ; and also if and when the Co. think proper the carrying on of the bus. of ins. against loss or damage at sea to ships, goods, and merchandise, and matters connected therewith, and all other bus. of a marine ins. office.

By the 14th art. it is provided that "every pol. of ins. of the Co. shall refer to these art. of asso., and shall contain a condition or special contract for limiting the liability of every shareholder to the amount of his shares from time to time not paid up." The condition or special contract to be contained in every pol. of ins. shall be in such form as the directors may from time to time be advised by counsel learned in the law to be effectual for securing the limitation of the liability of the shareholders. Art. 15. "Unless and until the directors be otherwise advised, the following shall be the form of the condition or special contract " :

Provided always that in accordance with the D. of Sett. of the Co., this pol. and the other pol. of the Co. are granted on this condition, and it is hereby especially agreed, that the Co. under all their pol. of ins. shall be liable in the whole only to the extent of so much of their corporate assets as from time to time shall be duly applicable for the satisfaction of their corporate liabilities thereunder : and with regard to the particular branch of their bus., that is to say, fire, life, or marine, in respect to which this pol. and such other pol. may respectively relate, and the particular funds set apart and appropriated to answer claims arising from such pol. respectively, those assets, including the amount of their cap. from time to time subs. but not paid up, and the whole of those assets being regarded as applicable in a due course of administration to the satisfaction of the whole of their corp. liabilities. And also that no present or future shareholder of the Co., his heirs, executors, or administrators, shall in respect of all or any of the liabilities of the Co. be subject to any proceedings at law or in equity or otherwise as to any other liability whatsoever, except only such proceeding as, in accordance with their art. of asso., the Co. may from time to time lawfully take, in order to compel the payment by such shareholder, his heirs, executors, or administrators, of calls made by the Co., in accordance with their art. of asso., in respect of shares held by him ; and also that no present or future shareholder of the Co., his executors, or administrators, shall in any way, directly or indirectly, by means of such calls or otherwise, be liable to pay to or for the Co., or in respect of any pol. of ins., or of any liability of the Co., or otherwise howsoever, any sum exceeding the amount from time to time not paid up on shares held by him ; but that every present and future shareholder of the Co., his heirs, executors, and administrators, shall in all respects have the like protection against all the liabilities of the Co. as if the Co. were incorp. by Act of Parl., enacting that the only liability of any shareholder therein, or of his heirs, executors, or administrators, should be his or their liability to pay to the Co. such part, if any, of the amount from time to time not paid up of the shares held by him as should, in accordance with the art. of asso. of the Co., be called up by them and made payable during the time of his being a holder of the same ; and also enacting that the liability of himself, as the holder of any share, and of his executors and administrators, except only as regarded calls duly so made and payable in respect of such share and then in arrear, should absolutely cease on his and their trans. such share in accordance with the art. of asso. of the Co.

Any cap. raised by new shares "shall, except so far as the Co. on the creation thereof

may otherwise determine, be considered as part of the orig. cap., and shall be subject to the same provisions in all respects, whether with reference to the payment of calls or otherwise, as if it had been part of the orig. cap." (art. 37). "The amount from time to time of the new cap. shall, except so far as the Co. on the creation thereof may otherwise determine, be divided, so as to allow the amount to be apportioned among the then existing shareholders" (38). New shares not so taken up may be offered to other persons (39). Shares may be consolidated into smaller number or increased into larger number, or be reduced in nominal amount (41). The Co. may by special resolution agree (1) that the bus. of the Co., or any branch of it, may be sold and disposed of; (2) that the cap. may be increased beyond five millions; (3) alter and make new provisions "in lieu of or in add. to any of the regulations of the Co. for the time being in force"; and (4) extend, alter, or vary "all or any of the objects for which the Co. has been estab., and may also adopt any other objects, and whether or not similar or of a like nature to all or any of the former objects of the Co." This last extraordinary power is thus qualified: "Provided that such extension, alteration, variation, or adoption be such as could be legally effected if the consent of every individual shareholder were obtained thereto" (art. 67). A resolution shall be deemed special whenever the same has been passed by three-fourths in number and value of such shareholders entitled to vote as may be present in person or by proxy at any general meeting, of which notice specifying the intention to propose such resolution has been duly given (68).

The authority of general meetings, by special resolution, to alter and make new provisions not to apply to such regulations of the Co. as (1) provided for the limitation of the liability of shareholders; (2) for the proportional equality of the liability of the shareholders; and (3) their interests in the profits of the Co., "which excepted regulations shall accordingly be deemed the only fundamental and unalterable regulations of the Co." (70). "On every question to be decided by ballot every shareholder present thereat in person or by proxy and qualified to vote, shall have one vote for every share held by him" (78). The number of directors not to be less than 9 nor more than 30 (89). Qualification for director 100 shares (90). Board, with consent of extraordinary gen. meeting, to determine what proportion (if any) of the profits of the Co. in respect of each or any of the several funds (if any) which may be estab. and kept distinct, shall be divided amongst and between the holders of pol. secured upon such funds; and the manner of appropriation (116). All dividends on shares to be declared by a gen. meeting, "and shall be made only out of the clear profits of the Co." (158) [This provision modified in 1870.] All calls in respect of shares shall be made at the discretion of the directors, so that one month's notice at least be given of each call (164). Board have full power to place Co. under any limited liability law thereafter passed (189). Co. to be dissolved whenever "one half of the actual subs. cap., whether paid up or not, shall be lost" (192). Whenever an extraordinary meeting is called for the purpose of dissolution, notice to be given not only to shareholders but to holders of L. pol. of £500 and upwards (195).

The first *Fire* prosp. said:

The tariff for Lond. mercantile bus. has been adjusted on the principle of classification, thus adopting the plan that *each class of goods should be charged a prem. proportionate to the risk.*

The directors, in deciding upon this tariff, have endeavoured faithfully to fulfil the wishes of the mercantile community, expressed at the influential meeting held at the Mansion House, on the 25th July last, and trust that they will receive such support as will enable them to carry out the system of rating on a classification of goods.

The directors will, at the expiration of five years, return to insurers a per-centage of profits on the prem. paid.

The *Fire* Man. selected by the promoters was Mr. Henry Thomson. It would prob. have been found impossible to select any one better or so well qualified for the task in view.

At an extraordinary gen. meeting held 20th Jan., 1862, certain alterations were made in the regulations of the Co.; but as these were again altered by other special resolutions at the next meeting, we need not further notice them. It was resolved at this meeting to commence *Marine* ins. Mr. J. Carr Saunders was appointed underwriter. The profits of this branch have contributed very largely to the success of the Co.

At another extraordinary gen. meeting held 30th Dec., 1862, various further alterations were made. In view of estab. foreign and colonial agencies, certain alterations were made in regard to the sealing of pol. Next, in view of commencing life bus., the following special resolutions were passed:

6. That in pursuance of the 42nd art. of the art. of asso. of this Co., the board of directors shall from time to time specifically appropriate so much of the accumulations, to be from time to time made, of the moneys of the Co. as may appear to them to have fairly arisen from the L. ins. bus. of the Co., as a fund to be called the *life fund*, and that such fund, and the accumulations thereof, shall be a primary fund for the security of the holders of L. policies of the Co.

7. That the proportion of the costs, charges, and expenses to be from time to time paid or incurred in carrying on the bus. of the Co. to be charged to the L. ins. bus. of the Co. shall not (exclusive of commission) exceed to p.c. on the ann. income derived from the payment to the Co. of the prem. of the L. pol. of the Co.

Other resolutions in relation to the L. bus. were adopted. Eighty p.c. of profits to be given to parti. pol.-holders every 5 years. First distribution as from 31st Dec., 1867. Mr. W. P. Pattison was appointed Act. of the Co.

In the latter part of 1863—after two years' experience—the Co. abandoned its orig. principle of independent action, and joined the associated tariff offices.

In 1865 an attempt was made to unite the bus. of the *Argus* L. with this Co.; but Parl. refused to sanction the proposed arrangement. [ARGUS LIFE.]

At the close of 1867 the first actuarial investigation into the bus. of the L. department took place. The rep. of the Act. says :

The first pol. was granted by the L. branch on the 1st day of May, 1862, and up to the 31st of the Dec. of that year the office had issued 180 pol., assuring a cap. sum of £171,300, and producing in yearly premiums £5245. As, however, several of the pol. were for a large amount, £798 had to be paid away in premiums for re-assu.; so that at the end of the first eight months the *net* amount of premiums received by the office was £4447.

In 1863 the bus. began to grow more rapidly, and has continued to do so. The pol. on the books at the close of 1870 were 1970, ins. £1,642,908. Of these pol. 1547 were parti., and 423 non-parti.; 469 pol. had lapsed. The life funds invested amounted to £169,623. The surplus shown was £43,807. Of this £41,000 was distributed—four-fifths to pol.-holders, one-fifth to shareholders. The bonus to pol.-holders averaged £2 2s. p.c. p.a. on sum ins. The following note was appended to valuation balance-sheet :—"The margin of premiums above the sums required to provide for the risks has not been included in this valuation, but has been set aside to form what is often termed a 'surplus fund.' The present value of this margin amounts to £118,936." The life rates of the Co. are deduced from the *Carlisle* T. The valuation was made by the *Experience* T. (No. 1). This was said to be adopted as a measure of extra precaution.

By other special resolutions adopted 8th March, 1870, the directors are empowered to declare interim half-yearly dividends, at a rate not exceeding 5 p.c. p.a.

The bus. prosp. of the Co. says, "The funds of the L. department are kept perfectly distinct from those of the other departments, and are invested in the names of separate trustees." [COMPLEX INS. ASSO.] Surrender value allowed on parti. pol. of 3 years' standing, "at least 40 p.c. of premiums paid"; on non-par. pol. 33 p.c. Loans granted on pol. up to surrender value to keep them in force. Whole-world licenses granted "at a small extra premium from 5s. p.c. p.a. on the sum assu., charged according to circumstances." Credit system of L. premiums adopted. The investigation for surplus, as from the 31st Dec., 1872, is now in hand. Mr. T. E. Young is now Man. of the L. department.

The Co. has branches in various parts of the world. It commenced bus. in the U.S. in 1870. Its losses at the Chicago fire in 1871 were only about £15,000; at the Boston fire, Nov. 1872, its losses were returned as under £60,000.

The first Sec. of the Co. was Mr. Ghinn; Mr. Alex. Sutherland now occupies that position. **COMMERCIAL WORLD, THE.**—Founded in 1869, and edited by Mr. Buckle. It is not devoted entirely to ins. topics, but some very well written articles on ins. subjects from time to time appear in its pages.

COMMISSION, AGENCY.—Under AGENCY COMMISSION we have dealt with this subject in chief. A few more notes may be added here.

Among the offices paying no agency commission should have been included the *Clergy Mut.* [printed in error as the *Mutual*]; also the *National Life*.

1819—The *European* (No. 1) allowed only 2½ p.c. commission to its agents.

1830—The *Ark* (No. 1) announced in its prosp.: "A return of 5 p.c. will be made on the first payment of premium, and upon each subsequent payment, made on or before the day appointed; such returns to be made to the party paying, whether principal or agent." This was, as to insurers, a simple reduction of the premiums 5 p.c. for prompt payment.

In 1849 Mr. Samuel Brown pub. *A Few Thoughts on Commission*, etc. He was of opinion that purely *proprietary* offices might pay agency commissions without injury to any one. He continues :

In a partly *proprietary* office [mixed] the general body of assurers suffer for the increased advantage of a few; in a purely *mut.* office they sacrifice the whole sum paid away in commission unless it can be shown that—first, some extraordinary advantage arises from the increase of numbers, though *à priori*, each member is supposed to produce the profits which he receives back; or secondly, what is a more common case, that there are some classes in the so. sharing in peculiar advantages at the expense of less favoured individuals: and who, by payment of commission from the common fund, charge the deduction to others, and take the profits to themselves. . . . It is a system which is easy to introduce, but from which we, as yet, know of no instance of a so. extricating itself.

In a paper by Mr. Jellicoe, read before the Inst. of Act. in 1850 [but which was not printed in the *Journal* until 1863, vol. x. p. 328], *On the Methods Pursued in Valuing the Risks of Life Assu. Cos., and on the Division of Surplus*, there occurs the following passage :

This charge [agents' commission], as is well known, instead of being regulated, as it ought evidently to be, by the amount assured only, is always in proportion to the premium, and therefore it will be proper to take this circumstance so far into consideration as to make a separate add. to the premium, on account of it. . . . It will be found that in a T. so formed the abnormal and distorted features so frequently presenting themselves in the rates for assu. put forward from time to time are no longer to be met with.

1869—At a Court of the *Equitable* So. held 2nd Sept. 1869, the Chairman on the occasion said that during the century of its existence the So., in consequence of paying no commission, had distributed among its deceased members the sum of £1,840,000 more than they would otherwise have received. It can only be said in reply that the whole circumstances of that So. have been exceptional from the beginning, and can hardly constitute a precedent for other offices.

The *Economic* several years since adopted the principle of paying to persons not acting as regularly-appointed agents, but who introduced bus., simply a brokerage commission of 15 p.c. on first prem. No renewal commission.

1872—The *Scottish Widows* adopted the same principle as the *Economic* as to bus. casually introduced.

COMMISSION DEL CREDERE.—Where an agent of a seller undertakes to guarantee to his principal the payment of the debt due by the buyer. The phrase *del credere* is borrowed from the Italian language, in which its signification is equivalent to our word guaranty or warranty.—*Story's Agency*.

COMMISSION, GOODS HELD ON, IN RELATION TO FIRE INS.—See **GOODS HELD IN TRUST OR ON COMMISSION**.

COMMISSION, INS. OF.—In the case of *King v. Glover*, 1806, it was held that an ins. on the "Commission, Privileges," etc., of the captain of a ship in the African trade, is legal. But in the case of *Knox v. Wood*, heard before Lord Ellenborough in 1808, it was held, that where the ship had been captured on her voyage to the port from whence she was to ship the cargo out of which a commission was to be earned, there was at the time of capture no insurable interest. [PROFITS, INS. OF.]

COMMITTEE OF INVESTIGATION.—It frequently happens in young ins. asso., as with other joint-stock enterprises, that in the event of anything going wrong, a "Committee of Investigation" is proposed. The remedy is often found worse than the disease.

COMMITTEES.—A good deal of the practical work of ins. asso. is performed by and under the direction of Committees. Committees have no special powers beyond those specifically delegated by the board, unless these additional powers be provided for by the orig. constitution of the asso.

COMMON ASSURANCES.—The legal evidences of the translation or transfer of property, whereby every person's estate is assured to him, and all controversies, doubts, and difficulties are either prevented or removed. Touchstone's *Common Assurances* is a well-known legal work. Novices sometimes suppose that it treats of insurance.

COMMON CARRIERS, INS. RESPONSIBILITIES OF.—See **CARRIERS**; also **PARCELS INSURANCE**.

COMMON LAW.—The Common Law includes those principles, usages, and rules of action applicable to the government and security of person and property, which do not rest for their authority upon any express or positive declaration of the will of the legislature. The Common Law may be said to underlie all the daily business transactions of life. They must all be governed by it, in the absence of special statutory enactment.

COMMON LAW PROCEDURE ACTS.—1852, 15 & 16 Vict. c. 76; 1854, 17 & 18 Vict. c. 125—amended by 19 & 20 Vict. c. 102; 1860, 23 & 24 Vict. c. 126. The provisions of these Acts are frequently incorporated in agreements for reference, etc.

COMMON LODGING-HOUSE ACTS.—1851, 14 & 15 Vict. c. 28; 1853, 16 & 17 Vict. c. 41.

COMMON SEAL.—A seal used by a corporation, co., or legally constituted asso., as a symbol of its incorporation. It is, as it were, the concentrated voice and act of all the members, when affixed in accordance with the regulations of the co. It is a rule of the Common Law, that (subject to one or two exceptions which we shall note) a body corporate is not bound by any contract which is not under its corporate seal; and this rule has always been rigidly adhered to both at Law and in Equity. Even a resolution of the members of the body corporate is not equivalent to an instrument under its seal. But strict as is the rule in question, it is and always has been subject to qualification. There are some matters of so trivial a nature that they can be done so as to bind a corporation in the absence of any instrument under its seal; these are matters arising of necessity in the course of its business.

The exceptions to the general rule to which we chiefly refer are those created by statute. Some of these arise under the Banking Acts, to which we need not more particularly refer here. The Cos. Act, 1856, contained some such exceptions. The Cos. Act, 1862, did not. The Cos. Act of 1867 contains some exceptions, which we shall speak of under the head of **CONTRACTS**.

In 1864 was enacted the 27 Vict. c. 19—*An Act to enable Joint-Stock Cos. carrying on bus. in Foreign Countries to have Official Seals to be used in such Countries*. The provisions of this measure will be given in detail under **SEALS ACT**.

COMMONWEALTH LIFE, LOAN, AND SICKNESS PROV. ASSO., founded in 1853, under the Friendly Sos. Acts. The prosp. said:

The *Commonwealth Prov. Asso.* is estab. for the purpose of extending more widely the benefits of L. assu., and bringing within its influence those of the humblest means. It is the desire of the man. of this Asso. to induce the clerk, the artizan, and the mechanic, by a small appropriation of his weekly income, to make provision for himself in sickness, and for his widow and children at his decease. It presents also an easy method of securing to a child, on attaining a given age, a sum of money from £10 to £100, without the risk of loss to themselves; as should the parent or guardian effecting such assu. require pecuniary assistance, it can at once be obtained by depositing the pol. with the Asso.

It may be here stated that the man. of the Asso. is confided to gentlemen, being members, of bus. habits and integrity.

Loan classes are being formed in connexion with this Asso. in Lond. and various parts of the country, by which advances of money may be obtained upon equitable and easy terms.

The Man. Director was Mr. Geo. Reynolds ; the Act., Mr. Tobiah Pepper ; the Sec., Mr. J. H. Evens.

We believe the So. never got into full operation, and it passed altogether out of existence in the following year.

COMMONWEALTH PROVIDENT LIFE.—This Co. was projected in 1854, by Mr. Geo. Reynolds, gentleman. It was prob. simply a regis. of the preceding Asso., for the purpose of bringing it within the operations of the Joint-Stock Cos. Acts.

COMMORIENTES.—Persons who die by the same accident, or upon the same occasion.

COMMUNICATE.—It is generally a specific condition in F. ins. pol. that if any alteration be made in the premises insured, or in the use to which they may be applied, the fact shall be forthwith “communicated” to the office.

It is, further, a principle attaching to all branches of ins. that the person seeking ins. is to “communicate” to the person to whom application for ins. is made, all material facts relating to the proposed ins. This we shall discuss fully under its converse aspect of CONCEALMENT.

COMMUTATION.—Conversion ; exchange ; labour saving.

COMMUTATION TABLES.—We have treated of these fully under COLUMNAR METHOD.

COMPANIES ACT, 1862—25 & 26 Vict. c. 89—An Act for the Incorp., Regulation, and Winding-up of Trading Cos. and other Asso. It came into operation Nov. 2nd, 1862. The provisions of this Act, and of its Amendment Act, 1867, so far as they relate to ins. asso., are mentioned under their proper heads throughout this work. [LEGISLATION FOR AND AFFECTING INS. ASSO.]

COMPANIES ACT, 1867—30 & 31 Vict. c. 131—An Act to Amend the Cos. Act, 1862. This Act came into force Sept. 1st, 1867.

COMPANIES CLAUSES CONSOLIDATION ACT, 1845—8 & 9 Vict. c. 16—An Act for Consolidating in one Act certain provisions usually inserted in Acts with respect to the Constitution of Cos. Incorp. for carrying on Undertakings of a Public Nature ; amended by 31 & 32 Vict. c. 119. 1863—26 & 27 Vict. c. 118 ; amended by 30 & 31 Vict. c. 127. 1869—32 & 33 Vict. c. 48.

COMPANIES, INS.—SEE INSURANCE COMPANIES.

COMPANIES, JOINT-STOCK.—See JOINT-STOCK COMPANIES ; Joint-Stock Cos. Arrangement Act, 1870—33 & 34 Vict. 3. 104.

COMPANIES, LIFE.—Life Assu. Cos. Act, 1870—33 & 34 Vict. c. 61 ; amended in 1871, by 34 & 35 Vict. c. 58 ; and in 1872 by 35 & 36 Vict. c. 41.

COMPANIES SEALS ACT, 1864—27 Vict. c. 19—An Act to enable Joint-Stock Cos. carrying on bus. in Foreign Countries to have Official Seals to be used in such Countries. [SEALS ACT.]

COMPANION TO THE [BRITISH] ALMANAC.—In this work, commenced in 1828, under the superintendence of the So. for the Diffusion of Useful Knowledge, there are several papers on ins. and kindred topics—some of them by well-known writers :

1831—*Life Assurance.*

1834—*Savings Bank Annuities. Tables of Mort. of E. and W.*—Mr. Rickman.

1835—*Bills of Mort.*

1840—*On the Calculation of Single Life Contingencies*—Prof. De Morgan.

1841—*Statistics of Disease and Mort. in E. and W. in 1838.*—*Regis. of Births, Marriages, and Deaths.*—*Extension of Vaccination.*

1842—*Life Contingencies* [Prof. De Morgan].—*Ann. Movement of the Pop. of E. and W.*

1843—*Sanitary Condition of Labouring Pop. of Gt. Brit.*

1844—*On Arithmetical Computation.*—*Pop. Returns, 1841.*

1845—*Occupations of the People.*—*Pop. of Ireland.*

1846—*Life Ins.*—*Comparative Tables.*

1848—*Health of Towns.*—*Odd Fellows' and Friendly Sos.*

1849—*The Cholera.*—*Relative Progress of Pop. and of Industrial Wealth.*

1850—*On Ancient and Modern Usage in Reckoning.*—*Cholera.*

1851—*On Some Points in the Hist. of Arithmetic.*

1852—*Census of Gt. Brit., 1841 and 1851.*

1853—*Census of Gt. Brit., 1851.*

1854—*Census of the U.S., 1850.*—*Occupation of the People.*

1859—*Practical Results of Sanitary Legis. in England.*

1861—*Friendly Sos.*

1863—*Logarithms for the Many.*—*Fires and Fire Brigades at Home and Abroad.*

1864—*Occupation of the People as Exhibited in Pop. T., 1851.*—*On Fire Ins. and its Taxation.*

1865—*Health of the Brit. Army in India.*

1866—*The Swedish Calculating Machine at the Gen. Regis. Office, Somerset House.*

1870—*Royal Commission on Water Supply.*

These papers are all referred to under their proper heads in this work.

COMPANY, JOINT STOCK.—An asso. of persons joined in the common interest, for the purpose of carrying on some commercial or industrial undertaking. [LEGISLATION FOR AND AFFECTING INS. ASSO.]

COMPANY AT JOHN'S COFFEE HOUSE FOR SHIPS.—A project thus advertised was started during the South Sea period; but what became of it we cannot discover. [MARINE INS., HIST. OF.]

COMPANY, INS.—The definition of an ins. co. under the L. Assu. Cos. Act, 1870, is as follows:

The term "company" means any person or persons, corporate or unincorporate, not being registered under the Acts relating to friendly socs., who issue or are liable under pol. of assu. upon human life within the U. K., or who grant annu. upon human life within the U. K.

The Cos. Act, 1862, says (sec. 3):

For the purposes of this Act a co. that carries on the bus. of ins. in common with any other bus. or businesses shall be deemed to be an ins. co.

COMPANY OF LONDON INSURERS.—This Co. was formed in 1709, and constituted the basis of the *Sun Fire*. It will be more convenient to give the entire hist. of this Co. under *SUN FIRE*. We shall have occasion to notice it under *FIRE INS.*, HIST. OF.

COMPANY OF PARISH CLERKS, incorp. by James I., 1611. [BILLS OF MORT.]

COMPASS, MARINER'S.—See *MARINER'S COMPASS*.

COMPENSATION FOR PERSONAL INJURIES UNDER LORD CAMPBELL'S ACT [1846], 9 & 10 Vict. c. 93—An Act for Compensating the Families of Persons Killed by Accidents—came into operation 26th Aug., 1846. [ACCIDENT, DEATHS FROM.] [COLLISIONS.] [INJURIES.] [NEGLIGENCE.] [VIOLENT DEATHS.]

COMPENSATION INS.—This title is given to a branch of accident ins., viz. to the payment of compensation for non-fatal injuries, *exclusive of any sum at death*.

COMPENSATION, LAW OR DOCTRINE OF.—Those who have been in the habit of observing natural phenomena must have been frequently struck, not simply with the wonderful uniformity which prevails, but rather with the *varying causes* which more or less frequently combine to produce this uniformity. Philosophers say these minor variations are themselves but manifestations of the operation of another law—the *law of compensation*.

Professor De Morgan, in his *Essay on Prob.*, 1838, has dealt with this subject:

The fluctuations of mort. have of themselves a tendency to create opposite fluctuations. Thus a very sickly season carries off the weak, and deprives the succeeding years of those who were most likely to have died; causing therefore a season of remarkable health. This is a very important item in the theory of the fluctuations of mort. . . . It reduces ann. fluctuation itself to a species of regularity, and is perhaps a sufficient reason for the slowness of the total fluctuations.

The Reg.-Gen., in his 5th Rep., pub. 1843, says:

One of the most remarkable points of the previous comparisons of the expectations of life at different times, in different nations, and various climates, will without doubt appear their remarkable uniformity. This uniformity does not imply that the external circumstances in which men live have no influence on the duration of life; it only tends to prove that life being regulated by constant laws, the circumstances adverse or favourable to existence produce, *by compensations of various kinds*, the same results.

It has been cited as an instance in support of these views, that the risk which females encounter at the child-bearing age is compensated for in males by the violent deaths they are subjected to during the same period on rivers, on the sea-coast, in mines, in the streets, in travelling, and in their dangerous occupations; by the accumulation of workmen in ill-ventilated shops, or the hard, exhausting work of the agricultural labourer, independently of war, and service in unhealthy climates. To these may be added mental agitations and anxieties, terminating unhappily sometimes in suicide—altogether making the chance of living from 25 to 45 rather in favour of English women. The operation of this law of compensation is everywhere traceable throughout mort. obs.: indeed it pervades all nature. The astronomer recognizes its influence in the remotest regions of space. The philosopher finds it ever present with his inquiries; reconciling and harmonizing the results. The moralist trusts to it when other hopes fail him. The phrenologist knows its influence in the nicely-balanced operations of the human will, and the subjugation of the passions. While the divine derives aid and consolation from it, and traces it to the sacred origin from which it first sprang.—*Ins. Guide and Handbook*, 1857.

COMPETITION.—Competition has many advantages—it tends to efficiency. But it is not to be regarded as an unmixed good. In L. ins. its operations are seen, when seen at all, in two forms—increased expenditure; increased mort. Happily, it has never yet seriously shown itself in relation to reduction of prem. When such an event shall happen, it will be an evil day for L. ins. But in nearly every other branch of ins., especially in *Marine*, *Fire*, and *Plate Glass* ins., this is just where it has shown itself in the most damaging form. On the subject of competition in F. ins., we commend to our readers the following judicious remarks from the *Monetary Times* of Canada, towards close of 1872:

While competition is the universal safeguard against undue exactions by public companies and private traders; while it is the dreaded foe of all monopolies, it is itself liable to generate abuses and grievances only less intolerable than those which it redresses. . . . The same is true of F. ins. in Canada; this fact we have demonstrated more than once. Ten or twenty years' operations in these provinces by some of the largest Brit. offices show an excess, we believe, of aggregate losses over premiums, without reckoning expenses at all. This is not right; it is a result in open defiance of all sound commercial principles. Not that the insuring public are to blame, the fault does not lie wholly at their door; the companies themselves have to bear the burden of the fault. A sort of internecine war, in which each preys on the other's vitals, is kept up; competition, reckless, uncurbed, has run riot with rates and terms of pol. and adjustments until the bus., as a bus., is of no advantage whatever

to those who have locked up their money in it. There is not in Canada any field in which an equal amount of money has been invested, and as much bus. talent and painstaking care employed, which shows so poor results. This is surely a sufficient reason why the bus. ought to be remodelled, and placed on a sound and profitable basis. The interests of all classes demand this. No bus. will be persisted in which does not pay. Besides in F. ins. such vast operations are conducted on a relatively small capital that the latter serves but as a margin against extraordinary contingencies. The real safety to the public is in the prem. being sufficient to meet the liability or risk assumed; if it is not sufficient, the capital will not long suffice to make good the deficiency. The demand therefore for higher rates for F. ins. can only be pronounced just, equitable and necessary, in order to nullify in a measure the effects of an abnormal and unhealthy competition.

COMPIGNE, DAVID, was Sec. of *Hants, Sussex, and Dorset*, for many years prior to its amalgamation in 1864.

COMPLEMENT OF LIFE.—The term “complement,” as applied to the duration of life, is derived from De Moivre’s *Annuities on Lives*, 1725: “I call that the Complement of Life, which is the time comprehended between an age given and the extremity of old age. Thus if the age be 50, and the extremity of old age be 86, the Complement of Life is 36.” By his *hypothesis*, the *Expectation of Life* was always half the *Complement*. Dr. Price used De Moivre’s hypothesis in the early eds. of his *Obs. on Rev. Payments*, etc.; and wherever he speaks of the *Complement of Life*, he always meant double the *Expectation of Life*, “whatever that may be, according to any tables of obs.” The term is not now generally used.

COMPLEMENT OF A SHIP.—The estab. number of officers and seamen of the several grades by whom she is intended to be manned.

COMPLETE.—A life annuity is said to be *complete* when the payment is to be continued up to day of the death, as distinguished from an annuity *curtate*.

COMPLETE LIFE POLICIES.—This title has been given in England to life policies, first issued in the U.S., on the plan of *ten* or any other number of fixed payments—each payment securing a proportionate part of the sum orig. insured—the forfeiture of policies being by such means avoided. The system is a most excellent one, and has been adopted in Gt. Brit. by several offices.

There have been, and are, one or two other phases of ins. which deserve to be enumerated under this title.

In 1709 the *Berkshire and Counties Ins. Asso.*, a scheme of mut. contribution, the completed value of which was to be £600, had the following provision: “When you have paid £400, though the life be not dead, then you shall have the £600.”

The *Briton L.* office applies the profits of certain of its parti. policy-holders to the extinguishment of the future prems., which in process of time will in effect render the policy complete.

Most of the L. offices in the U.S. provide that when the insured reaches the age of 100, the ins. shall be deemed complete, prems. cease, and the sum ins. become payable. In Germany, also, this plan is generally followed, but the pol. are usually made payable at younger ages. [AUSTRIA.] The *Positive L.* has adopted a modification of this plan.

COMPLETE REGISTRATION.—This was the final stage in the formation of joint-stock cos., under the Joint-Stock Cos. Regis. Act, 1844—7 & 8 Vict. c. 110. It implies a previous state of “provisional regis.” The whole subject will be discussed under *LEGISLATION FOR AND AFFECTING INS. ASSO.* The Act has been superseded by the Companies Act, 1862, etc.

COMPLEX INS. ASSO.—By “Complex Ins. Asso.” we mean those having several branches of ins. bus. combined, as fire and life; fire, life, and marine; fire and marine; life and accident ins.; life and fidelity guarantee; and similar combinations.

How it originally came to pass that businesses so essentially different as life ins., fire ins., and marine ins. were united, is as difficult to comprehend as why the essentially different businesses of grocery and drapery are combined in the Eastern portion of England; drapery and ironmongery in the Southern portion; grocery and pork-butcher in the Midland Counties; and grocery and spirit-selling in Ireland. Regarding the different branches of ins. bus., it may be replied that they all depend upon “averages”; but in the same way all business depends upon “profit and loss.” The averages will only come in favour of the office by the employment of skilled managers, who know what to accept, and what to reject; and profit, instead of loss, can result *only* to the trader who thoroughly understands the bus. he is engaged in.

It may seem at first sight invidious to dilate much upon this subject, seeing that in the case of existing offices of a complex character they are “accomplished facts”; but on the other hand the importance of the question demands some notice; and in the case of new asso. it is of the utmost importance to consider well beforehand the course to be pursued. We have indeed remarked during the past few years a very general departure from the method of “complex” ins. offices.

In the U.S., where the subject of ins. has been made a study by legislators, as well as by many astute business men, certain combinations of ins. bus. are absolutely prohibited. For instance, *no life co. can also carry on the bus. of fire or marine ins.* Fire and marine may be worked upon one capital. Life and accident ins. is also permitted. The Hon. Wm. Barnes, in his N.Y. Ins. Rep. for 1861, said, “*The sacred funds provided for the necessities of old age, and for the wants of the widow and orphan, should never be*

subjected to the hazards of *F. ins.*, extended over the four quarters of the globe." That is the enlightened view of an experienced man. That is the principle which has guided the legislators of several of the leading States of the American Union.

The subject has to a certain extent already engaged the attention of our legislature. The Parl. Committee which sat upon joint-stock cos. in 1844, having Mr. Chas. Ansell under examination, interrogated him on this point. Here are the questions and answers :

1920—Is there any advantage in having the same office for both a fire and life bus. ? Mr. Ansell : I do not know that there is, except that there is some expense saved ; there is, for instance, one house and one board of directors.

1921—Does one branch of business bring in business in the other line ?—I do not observe that there is much advantage of that kind ; I do not think the junction is very valuable in that respect.

1922—Is there any danger of the profits of the one being mixed up with the profits of the other ?—There may be ; but in the *Atlas* inst. the funds are kept totally distinct, and the investments are kept distinct.

1923—Are there separate books ?—Yes, there are separate books, not separate ledgers ; there is a general ledger which we can use for the two. [Mr. Griffith Davies, then Act. of *Guardian*, being present, said : In our office they are entirely distinct ; separate books altogether, and separate funds.]

1924—Separate capitals ?—Mr. Davies : No ; the same cap. is available to the one as to the other, if there is a necessity to resort to the cap. ; either the fire or the life has that privilege, but the funds of the fire and life arising from prem. are separate funds.

1925—The capitals are separate, with a mut. liability to aid each other if necessary ?—Mr. Davies : The prem. funds are separate, with a common guarantee of the shareholders' cap.—Mr. Ansell : It is not so in our office ; however disastrous the fire bus. might be, it would in no respect alter the bonus or profit upon the L. assu. bus. ; the proprietors themselves would have to make good the deficiency arising from the losses on the F. pol., leaving the L. assu. fund untouched.—Mr. Davies : Supposing that our cap. were entirely taken away by fire, if that cap. were not sufficient at the calling in of the shares, the L. fund would not be required to be called upon to aid in making up the deficiency in the fire, and *vice versa*.

Nearly all the considerations involved are here opened up in a very clear and candid manner. Each of these witnesses stated what he honestly believed. The lawyers, who did not *create* the difficulty of these compound offices, have done their best to remedy their more glaring dangers. The L. funds are made the subject of special trusts. These trusts *might* hold good in the event of any emergency. That would depend upon the equity in which they had been conceived, and care with which they had been conducted. If the L. department had traded with any part of the cap., so as to realize profits from it, questions would arise ; if any part of the cap. had been employed to make good deficiencies in the life fund, and had not been entirely repaid, more serious questions must occur. The complications which at all times threaten these separate funds may be judged of by a careful perusal of the "Limited Liability" clause in the pol. of the *Commercial Union*, which we have set out in our hist. of that Co. The clause is shaped in view of preserving the integrity of the *separate funds*, in the event of any cap. being required in special support of either branch of its bus. Whether it would or would not do so, it is not our present purpose to decide. It is a question which has engaged the serious consideration of many able lawyers. It must continue to do this until finally solved. It is certain that, in the event of any co. having a F. or marine ins. branch, or both, and either of these branches sustaining such a loss as to imperil the cap. of the co., and drive it into a winding-up, no one branch of the bus. could be suddenly severed, whatever the amount of its separate funds ; but that *all must fall under the tender mercies of the Court of Chancery together*. If the L. fund survived such a catastrophe, unquestionably the L. risks would be re-insured by its means with some other asso. ; but the co. itself would be wound up and extinguished.

We have, on the other side, to look at the advantages claimed for combination. These are held to be—1. and chiefly, Economy of management. A life bus. maybe worked in this form at a less per-centage of cost than as a distinct organization. It may, indeed, by throwing a portion of its expenses upon the other branches of bus., claim an apparent advantage over rival offices not so circumstanced. But here a point of danger arises. In the event of a liquidation, the expenses account *might have to be adjusted*. 2. By means of the large figures obtained at an early date, the asso. assumes a degree of importance which tends to secure to it public confidence. Legislation is seeking to unravel all complication of accounts arising from this cause. 3. Collateral strength is gained by reason of the connexions surrounding the other branches of bus.—whereas with a L. office not having a F. bus. associated, the agents, who desire to represent a F. co., only give a divided allegiance. This view of the case brings us to the point we have in mind. *Two, three, or any greater number of insurance businesses may be worked together, in one office, by one staff, not more extensive or diversified than at present*. For even now each branch of bus. must be superintended by persons who understand it. A separate cap. for each ; and a common constitution, regis. in duplicate, with only such modifications as are necessary for the government of each bus.—all of which have now to be mixed up in one deed—would answer every purpose. One sec., one board of directors, one set of auditors, and one solicitor. In a word, the practical difficulties of which we hear so much are only "difficulties in imagination." So with regard to existing offices. There is no insuperable barrier to separating the branches, and forming them into distinct asso. Apportion the cap. as may be thought desirable ; divide each present share into as many shares as there are branches of bus. ; give each shareholder one of each of these new shares, for each present

share, and you have accomplished a good work—to the injury of no one, but to the manifest security of all holders of L. pol. See the advantages immediately resulting! Either branch of the bus. can be disposed of—can be wound up in the event of disaster—and the other branches (now distinct asso.) remain undisturbed. The withering influence of the Court of Chancery could never reach them.

It will be found ere long that the considerations here raised are not ill-timed. *Legislation for ins. offices cannot be perfected till some such change as here indicated is made.* It will be well for directors and managers to be prepared. The existing complex ins. offices are for the most part solid enough; yet they are not free from the dangers we have indicated. We trust never to see another complex ins. co. submitted to the Brit. public.

The Life Assu. Cos. Act, 1870, provides as follows:

4. In the case of a co. estab. after the passing of this Act transacting other bus. besides that of L. assu., a separate account shall be kept of all receipts in respect of the L. assu. and annu. contracts of the co., and the said receipts shall be carried to and form a separate fund to be called the L. assu. fund of the co., and such fund shall be as absolutely the security of the L. pol. and annu. holders as though it belonged to a co. carrying on no other bus. than that of L. assu., and shall not be liable for any contracts of the co. for which it would not have been liable had the bus. of the co. been only that of L. assu.; and in respect to all existing cos., the exemption of the L. assu. fund from liability for other obligations than to its L. pol.-holders *shall have reference only to the contracts entered into after the passing of this Act, unless by the constitution of the co. such exemption already exists*: PROVIDED ALWAYS, THAT THIS SECTION SHALL NOT APPLY TO ANY CONTRACTS MADE BY ANY EXISTING CO., BY THE TERMS OF WHOSE D. OF SETT. THE WHOLE OF THE PROFITS OF ALL THE BUS. ARE PAID EXCLUSIVELY TO THE L. POL.-HOLDERS, AND ON THE FACE OF WHICH CONTRACTS THE LIABILITY OF THE ASSURED DISTINCTLY APPEARS.

The Schedules of the Act are also framed with a view to the separation of the life fund from the other funds of the Co. [ACCOUNTS OF LIFE OFFICES.] This must be regarded as an experiment, leading up to more complete legislation.

A most instructive decision on the point here involved has recently been given under the *European Arbitration Act*. The *European Co.*, under its Deed of Sett., was required to have its assets separated into two distinct funds: one, the "Proprietors' Fund," consisting of the moneys paid up on shares; and the other the "Assu. Fund," consisting of the prem. Lord Westbury held, *that the distinction between the Proprietors' Fund and the Assu. Fund must be disregarded, the assets of the Co., under whatever name they are entered, being applicable to the payment of the debts.*—*Vide head-note, Ruthin Guardians case, Law Times Report.*

COMPLEXION.—This should be noticed as going to make up the temperament hereafter to be considered. But any peculiarities in hue which it may have derived from antecedent or present disease or exposure should be noted: whether rendered sallow by residence in malarious districts; bronzed by exposure, or Addison's disease; unnaturally florid by intemperance, or cardiac lesion; livid by imperfect aeration of the blood from whatever cause; or "compounded of alabaster and the rose" by incipient phthisis; or pallid and sallow from albuminuria and anemia.—*Allen's Med. Examinations for Life Ins.*

COMPOSITION FOR LIFE TO RESIDE ABROAD.—See EXTRA PREMIUMS; FOREIGN RESIDENCE.

COMPOUND INTEREST.—Int. upon int., *i.e.* when the int. of a sum of money is added to the principal, and then bears int., which thus becomes a sort of secondary principal. Thus, if money is invested so that the int. is not paid as it becomes due, but successively added to the cap., the cap. is said to accumulate at compound int. This interesting and important branch of our subject will be fully discussed under INT. FOR MONEY.

COMPOUND LIFE POLICIES.—In 1867 Mr. T. H. Baylis issued an Explanation of a New System of Money Assu., combining Life Assu. with Tontines, by means of Compound Life Policies. He says:

Although greatly improved in many respects, by alterations made from time to time, L. ins. still stands in need of improvement in an important direction, *viz.* that of securing sums of money to the assu. themselves, receivable at early periods during their own lives, in add. to making pecuniary provision for their representatives at death, at the same rates of prem. as are paid for ordinary L. assu.

He then expounds the character of a "Compound Life Policy" as follows:

Where a compound L. policy differs from an ordin. L. policy is in the application of the sum assu. when it becomes a claim. Instead of being an isolated, independent contract, like an ordinary L. policy, which only secures the sum assured to the representatives of the assurer after death, a compound L. policy forms one of a class of policies belonging to members, who join their interests together in classes, for their own mut. benefit, as well as that of their families; and as each member of each class dies, one-half the sum assu. (or such other proportion as may be arranged) is paid to his representatives as a L. ins.; while the other half is divided into as many equal parts as there are survivors of the class, and paid to each of them in cash as tontines. Thus practically realizing a modification and combination of L. assu. and Tontine principles, destined, from the advantages they confer on those who thus associate themselves together, to be very extensively adopted.

A compound L. pol. is effected in the usual way, for the whole term of life, at the ordinary rates of prem., either on the bonus or non-bonus scale, as may be preferred.

If L. ins. ever again be made the subject of speculation, it would be difficult to find a more ingenious basis than this.

COMPRESSION OF THE BRAIN (from *comprimo*, to press together).—A diseased state of the brain, arising from compression by a portion of bone, or extravasated blood. It comprises "fracture with depression," and indentation of the skull without pressure.

COMPROMISE.—An adjustment of claims in dispute by mutual concession, without resorting to the law; also a mut. promise of two or more parties at difference to refer the ending of their controversy to arbitrators. [ARBITRATION.]

COMPTON, THEODORE, was trained to Ins. bus. in the *National Provident*, which office he left about 1840, for the purpose of founding the *United Kingdom Temperance*, of which he became the Act. and Sec. In 1849 he left the last-named office and became sup. of agents for the *Albion* (No. 1). On the amalg. of that Co. in 1857, he retired from Ins. pursuits.

COMPULSORY INSURANCE.—In 1872 a remarkable case came before the Lond. Court of Bankruptcy. Viscount Parker had been adjudicated a bankrupt. The property constituting his assets consisted of a reversionary life interest in the Macclesfield estates after the decease of the present Earl of Macclesfield. The trustee was advised that if the bankrupt's life could be ins. at the ordinary rate, a large sum of money could be obtained for the benefit of the creditors by sale or mortgage of the interest; but if such ins. could not be effected, the interest would be almost worthless. Under the circumstances, the bankrupt had been requested to submit himself to a medical examination at one of the ins. offices, with a view to his life being ins.; but this he declined to do. The trustee now applied for an order to compel his attendance at an ins. office. The counsel who appeared for the trustee in bankruptcy admitted that the application was one of entire novelty; but they contended, nevertheless, that, under existing circumstances, it was perfectly reasonable. They pointed out that by the terms of the 19th sec. every bankrupt was bound to do "all such acts and things in relation to his property and the distribution of the proceeds among his creditors as may be reasonably required by the trustee, or may be prescribed by rules of Court, or be directed by the Court by any special order or orders made in reference to any particular bankruptcy, or made on the occasion of any special application by the trustee or any creditor." They cited also the 26th sec. of 31 & 32 Vict. c. 119, giving the Judges power to order a person injured by an accident on a railway to be examined.

His Honour the Hon. W. C. Spring-Rice was of opinion that the Court had no jurisdiction to make any order. Upon principle the Court would not make an order upon a bankrupt to do an act which was an entirely voluntary act on his part. The reversionary interest which had been referred to possessed a certain value, and the Court had no jurisdiction to order the bankrupt to do something whereby that value might be enhanced. He supported his view in this manner:—Suppose a bankrupt to be highly endowed by nature with various gifts, and to possess wonderful skill in singing, and a splendid voice, he might, by the exercise of those gifts, realize a considerable estate for the creditors. But would this Court make any order upon him to sing? The case had arisen in regard to a bankrupt who had a special knowledge of some secret medicine which did not appear in his book of prescriptions, and application was made to the Court to require him to disclose that knowledge; but the Court absolutely declined to order him to do so, and it was stated that there was no authority to enforce such an order. [BANKRUPTCY.]

COMPUTATION OF AVERAGE.—It is a rule in the computation of general average, that the loss is to be calculated according to the law of the port of discharge. Therefore, an action will not lie in this country to recover money paid upon an average loss adjusted at St. Petersburg, according to the law of Russia, although the consignor and consignee of the goods, and the owner of the vessel, were Brit. subjects; and although by the law of England an average loss would not be payable under the circumstances. This was so held in the case of *Simonds v. White*, before the English Courts in 1824. [See also *Smith v. Macneil*, 1813.]

On the same principle, it was held in the case of *Power v. Whitmore*, 1815, that the insurer of goods in a foreign country is not liable to indemnify the insured (a subject of that country), who is obliged by the decree of a Court there to pay contribution to a gen. average, which by the law of this country could not have been demanded, where it does not appear that the parties contracted upon the footing of some usage among merchants obtaining in the foreign country to treat the same as gen. average; but such usage is to be collected merely from the recitals and assumption made in the decree.

In an action on a pol. for average loss, it was held in the case of *Barber v. French*, before the English Courts in 1779, that if the account is so complicated that it cannot be adjusted in Court, the jury, by consent of the parties, may find a total loss, the plaintiff entering into a rule to account upon oath for what part of the insured property he may recover. [AVERAGE ADJUSTERS.] [GENERAL AVERAGE.]

COMPUTATION OF LIFE CONTINGENCIES.—In the pages of the *Assu. Mag.* there have appeared from time to time some instructive letters on this subject, bearing more particularly upon the relative advantages of the old and new methods. Thus in vol. i. (p. 96*) is a letter from Mr. Peter Gray, *On the Comparative Advantages of the Old and New Methods of Computation*. In vol. viii. (p. 58), Mr. Samuel L. Laundry gives some problems applicable to the subject. In the same vol. (p. 118) a correspondent under the *nom de plume* of "Joshua Milne" enters upon a defence of the old method. The advantages of the new method we have discussed pretty fully under COLUMNAR METHOD. The student will find instruction in the papers now referred to.

COMPUTE.—To consider; to reckon; to estimate by data; to count; to number; to rate; to calculate.

COMPUTERS.—The requirements of the science of life contingencies have enlisted the aid of many computers; although not to the same extent as some of the mechanical sciences and astronomy. Prof. De Morgan, in his art on *Arithmetical Computation (Companion to the Almanac, 1844)*, said, "He who can easily, rapidly, and accurately add, subtract, multiply, and divide, is a computer." Mr. W. T. Thomson regards Mr. Geo. Barrett as deserving to be placed at the head of modern computers. Our article on ACTUARIAL T. will reveal the names of many others. Our art. on TABLES will contain many more. We regard Mr. Peter Gray as at the head of all living computers.

COMYN, VALENS.—Mr. James Hodson says in the preface to his *Valuation of Annu.*, 1747, "The method of putting down the ages of the several classes of people that die within the B. of Mort. (for which we are indebted to Mr. Valens Comyn) has furnished us with ample matter to found the computations upon." The merit of this has, however, been claimed by, or for, others. [BILLS OF MORT.]

CONCEALMENT.—A *suppressio veri*, to the injury or prejudice of another. The question of Concealment has a most special bearing in regard to ins. contracts. It has given rise to more litigation than any other single consideration. It will prob. continue to do so. It may be said that an almost especial interpretation has been given to concealment in relation to the contract of ins.; and this not by one Judge, but by many. In ordinary contracts a suppression, in order to be deemed a fraud, must at least amount to a withholding or non-disclosure of facts which one contracting party is bound alike by the rules of law and equity to disclose to the other—facts material to the subject-matter of the contract. In ins. the doctrine has been carried further, and is made to embrace moral considerations, such as constitute good faith in its widest sense between man and man. We shall endeavour to make this clear.

It is estab. by the law of every mercantile state, and the uniform decisions of the Courts at Westminster, that the suppression or concealment of material intelligence respecting a matter of ins., *whether fraudulent or not*, vitiates the pol.—*Vide* judgment in the case of *Thompson v. Buchanan*, 1782.

Mr. Justice Bailey laid down this principle in the case *Lindenau v. Desborough*, Sec. of *Atlas Ins. Co.*, before the Courts in 1828, viz.:—In all ins., whether on ships, houses, or lives, the underwriter should be informed of every material circumstance within the knowledge of the insured; and the proper question is whether any particular circumstance was in fact material—not whether the party believed it to be so.

In the case of *Dalglish v. Jarvie*, 1850, Mr. Baron Rolfe stated the law of concealment in relation to ins. as follows:

In cases of ins. the party is required not only to state all matters within his knowledge, which he believes to be material to the question of ins., *but all which in point of fact are so*. If he conceals anything which he knows to be material, it is a *fraud*; but, besides that, if he conceals anything that may influence the rate of prem., which the underwriters may require, although he does not know that it would have that effect, such concealment entirely vitiates the pol.

The case before the Court on this occasion was not an ins. case, but a question of copyright.

It was in 1766, in terminating the litigation in the now famous case of *Carter v. Boehm*, that Lord Mansfield delivered that judgment which can never pass into oblivion so long as the practice of ins. continues. We can give but a few passages of it here:

Ins. is a contract upon speculation. The special facts upon which the risk is to be computed lie most commonly in the knowledge of the insured only. The underwriter trusts to his statement, and proceeds upon confidence that he does not keep back any circumstances within his knowledge to mislead the underwriter into a belief that the circumstance does not exist, and to induce him to estimate the risk as if it did not exist. The keeping back such circumstances is a fraud, and therefore the pol. is void. Although the suppression should happen through mistake, without any fraudulent intention, yet still the underwriter is deceived and the pol. is void: because the risk run is really different from the risk understood and intended to be run at the time of the agreement. The pol. would be equally void against the underwriter, if he concealed anything: as if he insured a ship on her voyage, which he privately knew to be arrived; and an action would lie to recover the prem. The governing principle is applicable to all contracts and dealings. Good faith forbids either party, by concealing what he privately knows, to draw another into a bargain from his ignorance of that fact, and his believing the contrary.

He then reviews the other side of the question:

But either party may be innocently silent as to the grounds open to both, to exercise their judgment upon. . . . There are many matters as to which the insured may be innocently silent. He need not mention what the underwriter knows—*scientia utriusque par pares contrahentes facit*. (The law will not assist an improvident purchaser, nor will it interpose where both the contracting parties were equally well informed as to the actual condition of the subject-matter of the contract.) An underwriter cannot insist that the pol. is void, because the insured did not tell him what he actually knew, what way soever he came to the knowledge. *The insured need not mention what the underwriter ought to know; what he takes upon himself the knowledge of; or what he waives being informed of.* The underwriters need not be told what lessens the risk agreed, and understood to be run, by the express terms of the pol. He need not be told general topics of speculation: as, for instance, the underwriter is bound to know every cause which may occasion natural perils—as the difficulty of the voyage, the kind of seasons, the prob. of lightning, hurricanes, and earthquakes. He is bound to know every cause which may occasion political perils: from the rupture of states, from war, and the various operations of war. He is bound to know the prob. of safety, from the continuance and return of peace: from the imbecility of the enemy, through the weakness of their councils, or their want of strength.

The question must therefore always be, "*Whether there was under all the circumstances, at the time the pol. was underwritten, a fair statement or a concealment; fraudulent if designed, or though not designed, varying materially the object of the pol., and changing the risk understood to be run.*"

Notwithstanding this generally admitted principle, concealment continues to be one of the most fertile sources of litigation in connexion with ins. contracts.

The rationale of the subject has been very clearly put by Mr. Bunyon, in his *Law of Life Ins.*, as follows:

The insurers, it may be assumed, prior to the contract, are entirely ignorant of the premises upon which it may be founded, and must depend for them upon the insured; his statements are therefore the basis upon which the contract proceeds, and their truth as to all material points is essential to its validity. It is important to observe that the principle upon which the maxim *caveat emptor* [let a purchaser beware] is founded does not apply to the contract of ins. Not only must the party proposing the ins. abstain from making any deceptive representation, but he must observe the utmost degree of good faith, *uberrima fides* [most abundant faith]. Not only is he required to state all matters within his knowledge which he believes to be material to the question of the ins., but all which in point of fact are so. . . . An entire disclosure must then be made of all material facts known to the insured; and not only so, but all representations made by him as to material facts must be substantially correct; and to this may be added, that where a representation amounts to a warranty, it must not only be substantially but literally true.

The principle being admitted, and the reason and justice of it being understood, still questions as to what constitutes concealment continue to arise; and as these must vary with the varying nature of the bus., we propose to note some of the leading authorities and cases under each of the leading branches of ins.

Gambling Ins.—One of the earliest cases of alleged concealment which came before our Courts under an ins. contract arose out of what is now regarded by our law as a gambling ins., but which were of very common occurrence here for several centuries. [GAMBLING INSURANCES.] The Governor of a fort in the East Indies made an ins., "interest or no interest," against the capture of that fort by any foreign enemy. The fort was taken by the French. An action being brought in our Courts against the underwriter, he defended on the ground of concealment: showing, first, that the Governor did not disclose the state and condition of the fort; second, that he did not disclose that the French were likely to attack the fort; third, that he did not disclose that the French had entertained a design to take the fort by surprise the year before, of which he had before effecting the ins. obtained knowledge. On two occasions the English Common Law Courts found for the plaintiff, the Governor. The case then passed into the Court of Equity, but we believe never came to a hearing. It was on the occasion of an application for a new trial, in 1766, that Lord Mansfield delivered that famous judgment from which we have already quoted.

Marine Ins.—In this branch of ins. there is not only great opportunity, but likewise great temptation, to concealment. It is satisfactory to note, however, that here—and we assume equally so in other branches where the rule can apply—obligations against concealment operate equally on both parties to the contract. Bynkershoek, who wrote learnedly upon the question of marine ins. during the last century, lays it down as a principle that if an insurer, at the time of underwriting a pol., knows that the ship or goods are safe arrived, his concealing it is equally fraudulent as if the insured knew and concealed the fact that an accident had happened.

Weskett said, 1781:

Concealment of circumstances in matters of ins., especially in time of war, is so constantly practised, the temptations to it are so great, and the impositions, indeed the robberies, to which insurers in England are daily subject, are so various and enormous, that I venture to say that without some such methods of prevention, detection, and punishment as have been intimated in the preliminary discourse [of the work quoted], the condition of an insurer in the city of Lond. will become, notwithstanding his utmost skill, prudence, and precaution, beyond measure perilous and remediless.

In marine ins. the basis of the contract between the underwriter and the insured is, that the latter will communicate to the former information of every material fact of which the insurer has, or in the ordinary course of bus. ought to have, knowledge; and that the latter will take the necessary measures, by the employment of competent and honest agents, to obtain, through the ordinary channels of intelligence in use in the mercantile world, all due information as to the subject-matter of the ins. This was so held in the recent case of *Proudfoot v. Montefiore*, 1867.

In the case of *Shirley v. Wilkinson*, 1781, it was held by Lord Mansfield that where facts, not disclosed by the broker in a representation of the state of the ship, appear material to the jury, though they did not to the broker, who merely on that account abstained from mentioning them, the ins. is void.

In the case of *Lynch v. Hamilton*, 1810, it was held, that it is the duty of the insured not only to communicate to the underwriter items of intelligence which may affect his choice, whether he will ins. at all, and at what prem. he will ins., but likewise all rumours and reports which may tend to enhance the magnitude of the risk. Thus, if a pol. be effected on a ship or ships, and the insured, knowing their names, does not communicate them, the pol. is void; such an ins. being tantamount to a representation that he does not know by what ships the goods will come.

It will be seen that the question of materiality of the concealment frequently arises. Thus in the case of *Weir v. Aberdeen*, 1819, the following were the facts:—A vessel having sailed, and put back to the Downs, and then sailed again, and laboured and strained much from being overloaded, and then put back a second time: upon an application to the underwriters for liberty for the ship to go into port to discharge part of her cargo, it was only communicated to them that the ship was too deep in the water:—*Held*, that as the subsequent loss had not in any degree arisen from her having been so strained and laboured, the communication of that fact was immaterial, and that the communication made was quite sufficient.

In the case of *Greenwell v. Nicholson*, 1837, the facts were as follow:—A person at Sunderland effected a pol. of ins., and said no accounts had been received of the ship. His counting-house was at Belfast, and at the time of saying this, accounts had been received there, though this was unknown to him:—*Held*, that this statement was not false or fraudulent.

In the case of *Pimm v. Lewis*, 1862, where it was a condition of the pol. that it should be void if the ins. should omit to communicate any matter material to be made known to the ins.:—*Held*, by Baron Martin, that this meant some matter not only material, but also unknown to the insurer; and that it did not apply to something which it might well be presumed was well known to the insurer or his agent.

In the more recent case of *Bates v. Hewitt*, 1866, it was held, by the Lord Chief Justice Cockburn, that a person proposing a marine ins. is bound to communicate every fact within his knowledge that is material; though, if a particular fact is known to the underwriter at the time, he cannot afterwards set up as a defence to an action on the pol. that the fact was not communicated; but if a material fact is not communicated, which, though known to the underwriter once, was not present to his mind at the time of effecting the ins., the non-communication affords a good defence to the underwriter; and it is not enough for the insured to show that the particulars supplied by him, coupled with the underwriter's previous knowledge, would, if the underwriter had given sufficient consideration to the subject, have brought to his mind the material fact not communicated.

There is yet another, and still more remote, phase of Concealment, as set forth in the following cases:

In the case of *Fitzherbert v. Mather*, 1785, it was held, that any person acting by the orders of the insured, and who is in anywise instrumental in procuring the ins., is bound to disclose all he knows to the underwriter before the ins. is effected.

While in the more recent case of *Proudfoot v. Montefiore* (1867), already quoted, it was held, that an agent, whose duty it is, in the ordinary course of bus., to communicate information to his principal as to the state of the ship and cargo, ought to do so by telegraph, where that mode of communication is in general use; and if the agent omits to discharge this duty, and the principal, being thus left in ignorance of a fact material to be communicated to the underwriter, effects an ins., the ins. is void, on the ground of concealment or misrepresentation.

In the case of *Morrison v. Universal Marine*, before the Court of Exchequer in 1873, it was held: There is no rule or presumption of law, either in principle or upon authority, that underwriters are acquainted with the contents of Lloyd's list, so as to relieve a person proposing to ins. from the duty of communicating to them a material fact known to him before the completion of the ins., and pub. in Lloyd's list.

In this last decision the same principles have been followed as in the cases of *Xenos v. Wickham* and *Corry v. Patton*; but these hardly conform to the dictum of Lord Mansfield, in some of the judgments already quoted.

Life Ins.—Questions of Concealment too often arise in regard to contracts of L. ins.; and as the concealment here generally consists of facts within the knowledge of the person seeking ins., and too often the subject of concealment constitutes the motive for ins., the Courts have been very sensitive on the point, and have carried the doctrine of Concealment to its full limit in favour of the offices. Our cases are selected, as far as possible, to meet the varied points of practice. It must always be remembered that the varying conditions of L. offices are apt to introduce apparent inconsistencies in cases extending over a long period of years.

About 1760 an action was brought on a pol. made on the life of Sir James Ross for one year from Oct. 1759 to Oct. 1760, warranted in good health at the time of making the pol. Sir James died of a malignant fever within the period of the ins. It afterwards appeared that Sir James had received a wound in the battle of La Feldt, 1747, in his loins, which occasioned a partial relaxation or palsy, so that he could not retain his urine or feces, and which was not mentioned to the insurer. All the physicians and surgeons who were examined for the plaintiff swore that the wound had no sort of connexion with the fever; and that the want of retention was not a disorder which shortened life: for he might, notwithstanding that, have lived to the common age of man; and the surgeons who opened him said that his intestines were all sound. There was one physician examined for the defendant, who said the want of retention was paralytic; but being asked to explain, he said it was only a local palsy, arising from the wound, but did not

affect life ; but on the whole he did not look upon him as a good life. Lord Mansfield, before whom the case was tried, observed :

The question of fraud cannot exist in this case. When a man makes ins. upon life generally, without any representation of the state of the life insured, the insurer takes all the risk—unless there was some fraud in the person insuring, either by his suppressing some circumstance which he knew, or by alleging what was false. *But if the person insuring knew no more than the insurer, the latter takes the risk.* When an ins. is upon a representation, every material circumstance should be mentioned, such as age, way of life, etc. But where there is a warranty, then nothing need be told, but it must in general be proved, if litigated, *that the life was in fact a good one, and so it may be, though he have a particular infirmity.* The only question is, *whether he was in a reasonable good state of health, and such a life as ought to be insured on common terms.*

The jury, on this direction, without going out of Court, found a verdict for the plaintiff. In the case of *Aveson v. Lord Kinnaird and others*, which came before our Courts in 1805, the facts were very remarkable. The husband insured the wife's life for his own benefit in 1802. The wife had proceeded to Manchester for the purpose of being examined prior to the ins. Shortly after returning to her home, she, then lying in bed ill, told a friend that, in consequence of the bad state of her health at the time of the journey, she did not think she should have survived the ten days which would elapse between the examination and the issue of the pol. She afterwards died, and an action was brought on the pol. The evidence went to show that she drank to great excess. The surgeon who had examined her was called by the husband to prove that the wife was then in "good health," he having been mainly guided by her answers. The insurers, by way of answer to this, called evidence of the above statement by the wife ; and upon an appeal it was admitted, as showing her own opinion, "who best knew the fact of her ill state of health at the time of effecting the pol." The case went for the defendants.

In the case of *Watson v. Mainwaring*, 1813, which was an action brought by the executors of Dr. Watson against the *Equitable So.* to recover the sum ins. on his life, the defence was that the deceased had, in breach of his declaration to the contrary, a disorder tending to shorten life, and that therefore his pol. was void. For the plaintiff it was proved that Dr. Watson had applied to a physician in Bath regarding dyspeptic symptoms, and that these, though uncomfortable, do not generally, unless increased to an excessive degree, tend to shorten life ; and further that his complaint was not *organic dyspepsia*. Several medical men stated that they had attended him since the pol. had been effected, and that he was then quite free of the disorder. On the other side several medical men stated that they had seen him at the time of his visiting Bath, previously to effecting the ins., and that they considered him as a failing man. It was left to the jury to decide whether the patient's complaint was organic dyspepsia, and if it was not, whether the dyspepsia under which he had laboured was, at the time of effecting the pol., of such a degree that, by its excess, it tended to shorten life. The jury found that it was neither organic nor excessive ; and gave a verdict for the plaintiff. An application was afterwards made at the Court of Common Pleas to set aside the verdict and have a new trial, on the ground that *since the insured afterwards died of the same disorder which he had before effecting the pol., that circumstance was conclusive proof that he was then afflicted with a disorder tending to shorten life.* Mr. Justice Chambre remarked :—"All disorders have more or less tendency to shorten life ; even the most trifling, as for instance corns may end in a mortification. That is not the meaning of the clause. If dyspepsia were a disorder that tended to shorten life, within this exception, the lives of half the members of the profession of the law would be uninsurable." The application was refused.

In the case of *Morrison v. Muspratt*, 1813, the facts were these. A female with a disposition to consumption, such as cough and emaciation, had been attended by a medical practitioner for some time immediately previous to effecting an ins. He, however, did not suppose that structural disease was present, and she was then convalescent. The knowledge of this illness was not communicated to the insurers, and another practitioner, not then in attendance, but who had known her for several years, was sent to examine her, and he stated that she was in ordinary good health. *She died a year after effecting the ins. of consumption.* A verdict was found for the plaintiff ; but on application a new trial was ordered, on the ground that neither the medical attendance nor the illness had been communicated to the insurers ; and that the jury must decide whether this concealment was material.

In 1815, in the case of *Huguenin v. Bayley*, tried at the Sarum Spring Assizes, the defence set up was that a material fact had been suppressed. The life insured was at the time upwards of 60 years of age, but healthy for that period of life. It was not however mentioned in the medical certificate that at the time of examination, 1813, she was a prisoner for debt in the county gaol. The Judge supposed from the evidence, that by contrivance the physician had been prevented from stating this fact to the defendants, and therefore directed a nonsuit. But on an application to the Court of Common Pleas, a new trial was directed, on the ground that although there was nothing express in the terms of the pol. which required the imprisonment to be stated, and although everything called for by the office was answered, *yet, if the imprisonment were a material fact, the keeping it back would be fatal.* It ought, however, to have been submitted to the jury whether this was or was not a material omission.

In the case of *Maynard v. Rhodes*, 1824, the omission to mention the actual medical attendant proved fatal. Col. Lyon ins. in the *Pelican*. Previous to acceptance the usual printed proposal form was sent to him. Among its questions were, "Who is your medical attendant?" He answered, "I have none, except Mr. Guy, of Chichester." Another, "Have you ever had a serious illness?" He answered, "Never." Mr. Guy was referred to, and gave it as his opinion that Col. Lyon was an insurable life. He died in Oct., 1823, of a bilious remittent fever; and an annuity creditor pressed on an action against the Ins. Co. It was proved, on the part of the Co., that Mr. Guy had not been called to attend him for three years previous to giving his certificate; but that in 1823 Dr. Vetch, a physician, and Mr. Jordan, a surgeon, attended Col. Lyon from the month of Feb. to that of April, for an inflammation of the liver and fever, and a determination of blood to the head. The former proved that he considered him in a dangerous way, and had prescribed active medicine; and that he would not have certified him to be in health until the end of May. It was, however, agreed on all hands that the disease of which he died had no relation to any of the complaints for which these gentlemen attended him. The jury, however, found a verdict for the Co.

In the case of *Chattock v. Shawe*, 1835, the facts were as follow:—Colonel Greswolde made an ins. on his life, and died in two years thereafter. The Co. resisted payment, on the ground that the Colonel had been intemperate, and also had epileptic fits; and that these facts had been concealed from them. On these points there was great diversity of testimony. It turned out, however, that the ins. had had two fits, the result of an accident, and that he died from a fit. Lord Abinger charged the jury that all that was required to be considered was, whether it was satisfactorily proved that the Colonel had been subject to fits and accustomed to intemperate habits *before* the pol. was issued. It was not sufficient to vitiate the pol. if an epileptic fit had previously occurred in consequence of an accident. It must be shown that the constitution either was naturally *liable* to fits, or by accident or otherwise had become so. A verdict was found for the plaintiff.

The case of *Lindenau v. Desborough* (1828) is very frequently referred to in works on the law of ins. It was a remarkable one. In 1824 a pol. was effected by the Baron Von Lindenau on the life of Frederick IV., Duke of Saxe-Gotha and Altenberg, in the *Atlas* Ins. Co. The Duke died on the 11th Feb., 1825, and the office refused to pay, on the ground of concealment and suppression of material facts. On the trial it appeared that Lindenau had stated in the application that the Duke was not gouty, asthmatic, or consumptive, or subject to fits; that he had never had apoplexy, and that he had no disease tending to shorten life. Two physicians of the Duke certified that since the year 1809 he had had a dimness of sight, from amaurodis in the left eye, and since 1819 had been "*hindered*" in his speech from having had an inflammation of the chest, of which he had been perfectly cured; and they further stated that he was perfectly free from disease and the symptoms of disease. In a communication from an agent in Germany, it was mentioned that the Duke had formerly led a dissolute life, "by which he had lost the use of his speech, and according to some, that also of his mental faculties; which, however, is contradicted by the medical men." On this the Co., instead of quoting the ordin. prem. of £2 17s. p.c. p.a., required £5 p.c. It was now put in evidence that the Duke had been afflicted with almost a total loss of speech from 1822 to the time of his death, which one of the physicians attributed to local paralysis; and that he had periodical catarrhal affections, accompanied with fever. The chamberlain of the Duke, on his examination, mentioned that he never complained of pain in his head. He ate, drank, and slept well, but could not speak. Dr. Dori, physician to the Duke, agreed that his intellectual faculties were impaired, although his bodily health was good. On *post-mortem* examination no chronic disease had been discovered in the viscera or any part of the trunk; but in the head was found a large tumour, six inches in length, two in breadth, and one in depth, which not only pressed on the brain, but had depressed the skull at its base. It was inferred that this tumour had commenced in early life. Mr. Green, an eminent English surgeon, gave it as his opinion that, from the hist. of the case merely, there was no symptom of organic disease. He further thought that the tumour in the skull must, during life, have been in a passive state, and, from the appearance on dissection, that it must have been formed in early life. He was only willing to allow that the symptoms mentioned above would lead to a suspicion of disease in the head; and he was disposed to attribute the difficulty of speech to want of volition, and not to the tumour in the brain. In reply, however, to a question from Lord Tenterden, the Judge before whom the case was heard, he answered, "If I, as a medical man, was asked by an ins. co. concerning the state of a man's health who was unwilling to move, who was subject to control upon his intellect, and who had lost his speech, I should not consider myself at liberty to forbear mentioning these circumstances." Lord Tenterden said this was sufficient, and he should charge the jury, *that if any material facts relative to the Duke's health were concealed, the pol. was void*. The plaintiff thereupon elected to be nonsuited; but subsequently made an effort to obtain a new trial, which was refused.

In 1829 there came before the Courts the case of *Everett v. Desborough*, in which some points of the law in relation to insuring *upon the life of another* were elucidated. Everett

had effected a pol. with the *Atlas* for £1000 on the life of *Howes*, who had formerly resided at Warminster, but afterwards removed to Bath. While in the former place he was sober and temperate in his habits, and was to all appearance a man enjoying a good state of bodily health; while at the latter place he gave himself up to habits of intoxication, and ultimately died in a fit of apoplexy. On the application for ins., the agent of the *Atlas* gave to the plaintiff a paper containing the questions touching the health of the life to be insured. Amongst these was one requiring the name of the medical man who had usually and of late attended the person to be insured. The plaintiff inquired of *Howes* on these points, and was referred to a Mr. Vicary, of Warminster. Upon action brought, it turned out upon evidence that Dr. Vicary had not attended *Howes* for nearly twenty years. The question was raised whether this misrepresentation did not vitiate the pol., although unknown to the plaintiff. In the end a nominal verdict was taken for the plaintiff, with leave to the Co. to move to enter a nonsuit. On the subsequent hearing it was admitted to be a rule of law that, in cases of this kind, if the party ins. the life of another practised any concealment or deceit on the underwriters, with regard to any material fact concerning the life to be ins., upon proof of the fact, the pol. was vitiated. But in this case the deceit or concealment was practised by the life ins., and not by the plaintiff, who was ignorant that any misrepresentation had been made. On the part of the Co., it was contended, that the plaintiff in the case must be treated as *principal*, and *Howes* as the *agent*. The plaintiff acted upon the representation of *Howes*, who was his agent, and he (the plaintiff) should be held liable as the principal for the acts of his agent. The Court adopted this view, and the rule for nonsuit was made absolute in favour of the Co.—This principle was affirmed in the case of *Maynard v. Rhodes*.

About 1830 the well-known case of the Earl of Mar arose. In 1826 the Earl effected several ins. on his life, and among these one in the *Edinburgh L.* for £3000. This pol. was held by a banking house in Edin. as security for debt. The Earl died in Sept. 1828, of jaundice and dropsy. The Co. then learned that he had been for years in the habit of taking laudanum to excess; and instead of being, as had been represented, temperate and active, that he had drank to excess, and led a very sedentary life. They refused to pay, and a suit was instituted in the Scotch Courts. The plaintiffs admitted a manifest change in the health and spirits of the Earl in 1827, but ascribed this to his pecuniary embarrassments. On the part of the Co., it was proved that he had been in the habit of taking laudanum for 30 years, and in large quantities. He used to take a tablespoonful at a time on going to bed, and often also when going out to walk, etc. They contended that this was a "habit tending to shorten life." It was also stated in evidence that he had been subject to rheumatism and stomach complaints previous to effecting the ins. The charge of the Chief Commissioner—before whom the case was heard—was in favour of the plaintiffs, principally on the technical ground that the Co. did not make inquiries relative to the health of the Earl with the care usually observed, and were therefore to be understood as accepting the life at a venture. He also appeared to entertain doubts whether the habit was carried to such an extent, or at all events whether it was so important a circumstance, as to render it necessary for Lord Mar to reveal it. The jury thereupon found for the plaintiffs; but on an appeal to the Court of Session, the verdict was set aside, and a new trial was granted, 1832. The Lord Chief Commissioner said "it was a verdict without due and sufficient deliberate consideration of the evidence." The parties finally came to a compromise. [*Forbes and Co. v. Edinburgh L. Assu. Co.*, Cases in the Court of Session, vol. x. p. 451.]

In 1830 also there came before the Court of Common Pleas the case of *Edwards v. Barrow and others*, which presented some novel features. A pol. of ins. had been effected with the *Globe* on the life of a Miss S. The pol. was dated 10th Sept., 1828, and was for 7 years. Miss S. died in March, 1829. The usual declaration had been made, and was recited in the pol., "that the person ins. was not afflicted with gout, etc., or any disease tending to shorten life." It appeared in evidence on an action brought that at Christmas, 1827, she was in a fair state of health; that in Sept., 1828, she was in general good health, except that she complained of little pains in the head. She was a pale and weakly-looking person. In Feb., 1828, she had been bled and leeches for a supposed determination of blood to the head; but appeared subsequently, and shortly previous to her last illness, to be healthy. Upon a *post-mortem* examination it was the opinion of the medical men that there was nothing which they could call unhealthy about the stomach or head, or anything elsewhere which would lead them to suppose that she was affected with any disease likely to shorten life. It turned out that in 1825 she had had a child. A physician who was examined stated that that fact could not have accelerated her death, and that he should not think it necessary for an office to inquire if a female had had a child; but that he, being aware of the fact, and being applied to by an office, should think it *material* to state it. Some letters from Miss S. to a schoolfellow were written shortly before and after the ins. was effected, detailing the state of her health, which she considered very bad, and stated in one of them that "her health was entirely gone, and her constitution quite undermined." The Chief Justice interposed, and asked the counsel for the plaintiff if he thought he could get over the declarations in these letters, and also

the fact of Mr. H. E., who effected the ins., concealing the circumstance of Miss S. having had a child, of which he was aware? A nonsuit was submitted to.—*Ellis*, 1846.

In the famous Irish case of *Abbott v. Howard* (Director of *Alliance F. and L.*), 1832, where the jury afterwards found there had been concealment, Chief Baron Joy charged the jury on the subject of Concealment as follows :

The question is then, has this Ins. Co. been fairly dealt with, and has no fact been withheld from them which they were entitled to know? I take the law to be this, *as to the facts and circumstances not provided for by the written instrument*, that they may or may not be material; but if they be material, they ought to be communicated to the Co. . . . It has been argued here that the parties are bound by the terms of their pol.; that they cannot travel out of them; and that the written contract cannot be varied by any matter *dehors* it. . . . The defendants seek not to vary, but to annul the contract, on the ground that by this fraudulent concealment it would be inequitable to enforce it. . . . [After citing *Huguenin v. Bayley*, already quoted by us, he continued:] That case shows as clear as light that although the party did not omit to answer anything as to which he was interrogated, *yet if anything material were in his knowledge, and not communicated*, the suppression would be fatal.—*Bliss*, 1872.

In the case of *Sweete v. Fairlie*, 1833, where the ins. was on the life of another, the life insured, Mr. Abraham, had stated in reply to the usual question concerning diseases, that he was troubled with "occasional indigestion only." This was in 1827. It appeared in evidence at the trial that he was seized with depression of spirits, nearly, if not quite approaching to insanity. He was not however secluded, but took lodgings in the country, and came to town every day and attended to business. This after some time restored him to health. His complexion was florid, and there was the general appearance of a tendency to determination to the head. He died of apoplexy in 1830. It was held, by Lord Lyndhurst, that a pol. of ins. on the life of another person, who at the time of ins. is in a good state of health, is not vitiated by the non-communication by such person of the fact of his having, a few years before, been afflicted with a disorder tending to shorten life, *if it appears that the disorder was of such a character as to prevent the party from being conscious of what had happened to him while suffering under it*.

In the case of *Fisher v. Beaumont*, tried at York in July, 1835, the defence was the existence of insanity, which had been concealed. The Judge told the jury that the question was, whether the individual laboured under any disease *likely to shorten life* at the time the policies were effected; whether insanity was that disease; and, if so, whether it had a tendency to shorten life. The presence of insanity was proved; and all the medical witnesses except one swore that they did not think it had a tendency to shorten life. The jury found for the plaintiff. A correspondent in the *Lond. Medical Gazette* combated the above medical testimony, and quoted Lawrence in proof that the brains of maniacs show more or less disease. On the other side the long life of many of the insane was urged. Beck (*Med. Jurisprudence*) argued from this case the necessity of tables of mort. based on returns from lunatic asylums to settle the point. [LUNACY.]

In the case of *Huckman v. Fernie*, 1838, the action was brought by the plaintiff on a pol. effected on his wife's life, who, it appeared in evidence after action brought, had, before and up to her marriage, been frequently attended for serious disorders by a particular medical adviser, and nearly up to the time when the pol. was effected; and that after the marriage the medical attendant of the husband's family on one or two occasions, when called in to other members of the family, had prescribed for her in the case of a cold or some trifling matters. She referred the office to the latter as her usual medical attendant. The Co. stated that before the ins. was effected the wife had suffered from *delirium tremens*, erysipilatus inflammation of the legs, etc., all which the husband knew. It appeared that at the time the pol. was issued the wife had been examined at the ins. office, and answered several questions put to her, but did not inform the Co. as to these disorders. It did not appear that questions eliciting these disorders had been put; nor did they appear to fall within the scope of the declaration on the proposal for ins. The jury did not find the insured to be intemperate, or that the statement of the disorders was material to be known. It was held upon the issue as raised by the pleadings, *that the wife was not the general agent of the husband, but only sent to answer particular questions; and that her knowledge was not, in this respect, the knowledge of the husband*. The verdict was for the plaintiff; and although an application for a new trial was made, on the ground of the Judge having left it to the jury to say which was her usual medical attendant, the verdict was not disturbed.

In the case of *Geach v. Ingall* (Sec. of *Imperial L.*), 1845, where it was stipulated by the pol. that it should be void, if anything stated by the ins. in his declaration to the directors should be untrue, the ins. in his declaration had stated that he was at that time in good health, and not afflicted with any disorder, nor addicted to any habit tending to shorten life; that he had not at any time been afflicted with insanity, rupture, gout, fits, etc.; that he had not any spitting of blood, consumptive symptoms, asthma, cough, or other affection of the lungs; and that W. was at that time his usual medical attendant. It afterwards transpired that for years previously the ins. had spit blood; that he had since evinced consumptive symptoms, and ultimately died of consumption, three years after taking out the pol. The Judge directed the jury to say whether the ins., when he made his declaration, had such a spitting of blood and such an affection of the lungs and inflammatory cough as tended to shorten his life:—*Held*, on appeal, that this was a mis-

direction, as the ins. was bound to state to the Co. the fact of a single spitting of blood, to enable them to ascertain whether it proceeded from the disorder called by that name.

In the case of *Anderson v. Fitzgerald*, decided in the House of Lords in 1853, the circumstances were as follow : F. applied to the *United Kingdom* Ins. Office to effect an ins. upon his life. He received a form of proposal, one of the questions in which was, "Did any of the proposer's near relations die of consumption or any other pulmonary complaint?" Another was, "Has the proposer's life been accepted or refused at any other office?" To each of these questions F. answered "No." These answers were false. F. signed the proposal, and a declaration accompanying it, by which he agreed "that the particulars mentioned in the proposal should form the basis of the contract." The pol. mentioned several things which were warranted by F. The subject of these two answers was not included in such warranty. The pol. also contained a proviso, that "if anything so warranted shall not be true, or if any circumstances material to this ins. shall not have been truly stated, or shall have been misrepresented or concealed, or any false statements made to the Co., or about the obtaining or effecting this ins.," the pol. should be void, and the prem. paid should be forfeited :—*Held*, on appeal, that it was a misdirection to leave it to the jury to say whether the answers to the questions were material, as well as false, and that, if not material, the plaintiff was entitled to a verdict. *The representation being part of the contract, its truth, and not its materiality, was the question.*

In the case of *Jones v. Provincial Ins. Co.*, 1857, the facts were as follow : At the time of effecting the pol., the insured signed a declaration in writing, which was to be the basis of the contract, and in which he stated that he had not had certain specified diseases ; that he was in good health ; and that he was not aware of any circumstance or disorder tending to shorten his life, or to render an ins. on his life more than ordinarily hazardous :—*Held*, that to make the declaration untrue, so as to vitiate the pol. granted, the insured must not only have known, when he signed the declaration, that he had had some circumstance or disorder tending to shorten his life, or to render an ins. on his life more than ordinarily hazardous, but he must also have known that such circumstance or disorder was of a character to shorten his life, or to render an ins. on his life more than ordinarily hazardous.

In the case of *Hutton v. Waterloo Life*, tried before Lord Chief Justice Cockburn in 1859, the form of proposal of the Co. contained the following questions : "If of sober and temperate habits?" "If aware of any disorder or circumstance tending to shorten life?" "Is there any other and what information touching the past or present state of health which the Co. ought to be made acquainted with?" "Name and address of ordinary medical attendant?" The answers concealed certain information. The insured had, in the year preceding that in which the pol. was effected, and in the very same year, been attended for the effects of severe drinking ; on the last occasion (a month or two before the proposal for ins.) for *delirium tremens*, of which he, in two years' time, died : and the medical man who had attended him for several years before the ins., and down to his death, was not mentioned as the ordinary medical attendant :—*Held*, that this justified a verdict for the Co., even although the answer to the latter question was *bona fide*.

In the case of *British Equitable Ins. Co. v. Gt. Western Railway Co.*, in the Equity Courts, 1868, the facts were as follow : In July, 1863, B. negotiated for the ins. of his life, and in filling up the usual declaration as to his health and habits of life, stated that he could not remember when he was last ill, and that he was then, and always had been, enjoying good health. After examination by the medical officer of the Co., he was accepted as a first-class life. In August preceding the completion of his contract he became alarmed about his health, and went to consult a physician other than his ordinary medical attendant, who warned him that he was in a dangerous state of health, and prescribed for him. He never communicated this circumstance to the Co. In Sept. the prem. was paid and the pol. effected. On the receipt for the prem. was indorsed a condition that if any variation should have taken place in the health of the insured since the date of medical examination, and before actual payment of the prem., the receipt should be void. Eight months afterwards the insured died. It was not proved satisfactorily of what disease :—*Held*, that the non-communication to the Co. of his change of health and visit to the physician was fraudulent, and vitiated the pol. This was confirmed on appeal.

In the case of the *Life Assn. of Scotland v. Jane Foster and others*, before the Scotch Courts in January, 1873, the Co., in attempting to act upon the ruling of some of the preceding cases, by resisting a claim where incipient hernia had been concealed, has found itself defeated, and has been subjected to some severe comments. The complexion of the case rendered it not a happy one to contest.

In the case of *Bembridge v. Hoare* (Chairman of the *Sun* Life), before the English Courts three days later than the last-named case, where the concealment was mainly in relation to difficult labours, and derangements consequent thereupon, the jury found for the defendants on all points.

It appears that the law regarding Concealment in relation to life ins. is the same in the U.S. as in the U.K. Mr. Bliss jun., in his excellent *Law of Life Insurance*, etc., 1872, says :

It is true of Concealment, as of misrepresentation, that if it proceeds from fraud, it avoids the

pol., whether material or not : and the fraud precludes all inquiry as to the materiality ; but if there is no fraud, then the concealment must be of a material circumstance ; and the test of materiality in concealment is in all respects the same as in misrepresentation. It is, however, of course essential that the assured should have known the fact concealed, or was bound to know it ; but if he purposely neglects to learn material facts, it is a concealment. If there is a warranty of any especial matter, it supersedes the necessity of a disclosure as to the fact warranted.

Fire Ins.—In F. ins. prob. neither the temptation nor the opportunity of Concealment exist in the same degree as in the preceding branches of the bus. The difference in prem. between the varying classes of ins. is not usually great ; and then there is always the opportunity for the surveyor or inspector of the office to examine the risk. Happily, the system of inspection prior to acceptance is becoming more and more general. It is the one great safeguard of the bus.

In the case of *Bufe v. Turner*, 1815, the plaintiff, residing in Heligoland, having one of several warehouses next but one to a boat-builder's shop, which took fire, he on the same evening, after the fire was apparently extinguished, sent instructions by an extraordinary conveyance, the mail having started, to have that warehouse insured in the *Phoenix Fire Office* of Lond., but did not communicate to the insurers the fact of the neighbouring fire. It afterwards transpired that the fire, which took place on Saturday evening, was apparently extinguished by 8 o'clock on that evening ; it was however necessary to watch the premises all night, and on the Monday morning following it broke out again, and communicating through the intervening building, consumed the warehouse insured. The Court of Common Pleas held that this concealment voided the pol., *although such communication was not comprised within the express terms and conditions of the Co.*

In the case of *Pim v. Reid* (*Imperial F.*), 1843, the pol. contained this condition : "In the ins. of goods, the building or place in which the same are deposited is to be described, the quantity and description of such goods, also whether any hazardous trade is carried on, or any hazardous articles deposited therein ; and if any person shall insure his goods or buildings, and shall cause the same to be described, otherwise than they really are, to the prejudice of the Co., or shall misrepresent or omit to communicate any circumstance which is material to be made known to the Co., in order to enable them to judge of the risk they have undertaken, such ins. shall be of no force :"—*Held*, that this condition was to be referred to the time when the pol. was effected, and that, in the absence of fraud, neither by the general law of ins. nor by such condition was the pol. avoided by the circumstance that, subsequently to the effecting of the pol., a more hazardous trade had, without notice to the Co., been carried on upon the premises.

In the case of *Glen v. Lewis* (*West of England F. and L.*), 1853, the facts were as follow : An ins. against fire was effected on certain premises. The pol. contained the following conditions—1. Persons making ins. to give an accurate description of the buildings, and if there should be used therein any steam-engine, stove, etc., or any description of fire-heat, other than common fire-places, or any process of fire-heat to be carried on therein, the same to be noticed, and allowed in the pol., otherwise the pol. to be void. In case of any circumstance happening after an ins., whereby the risk should be increased, the assured to give notice in writing to the insurers, that the same, previous to a loss, might be allowed by indorsement on the pol., otherwise the pol. to be void. 2. In case of any alteration being made in a building insured, or of any steam-engine, stove, etc., or any other description of fire-heat being introduced, or of any trade, business, process, or operation being carried on, or goods deposited therein, not comprised in the orig. ins., or allowed by indorsement thereon, notice thereof must be given ; and every such alteration must be allowed by indorsement on the pol., and any further prem. which the alteration may occasion must be paid ; and unless such notice be given, such prem. paid, and such indorsement made, no benefit will arise to the assured in case of loss. The insured, who was a cabinet-maker, placed a small steam-engine on the premises, with a boiler attached, and used it in a heated state for the purpose of turning a lathe, not in the course of his bus., but for the purpose of ascertaining, by experiment, whether it was worth his while to buy it, to be used in that bus. After this engine had been on the premises for several days, a fire happened :—*Held*, that the insured could not recover on the pol., since the terms of the condition applied to the introduction of a steam-engine, in a heated state, *at any time*, without notice to the Co. ; and that it made no difference whether it was used by way of experiment, or as an approved mode of carrying on the bus., or whether it was used for a longer or a shorter term.

In the case of *Stokes v. Cox* (*Birmingham F. Office*), 1856, where the circumstances were in many points analogous to the above, but where the conditions of the pol. did not specifically mention a steam-engine, it was held by the Exchequer Chamber that the introduction of a steam-engine did not vitiate the pol.

In the case of *Baxendale v. Harding* (*Norwich Union Fire*), 1859, where it was one of the conditions of the pol. that the "nature and material structure of the building should be truly described," and another that it should be stated whether any hazardous bus. was carried on :—*Held*, that an omission to mention a steam-engine *bonâ fide* used in the building, but only to grind corn for the horses used on the premises, was not a want of proper description avoiding the pol.

Mr. Bunyon says, in his *Law of Fire Ins.*, 1867 :

If a person effected an ins. upon a building as a private dwelling-house, but omitted to mention

that its windows overlooked a petroleum store, or floor-cloth manufactory, or some other equally dangerous structure, it cannot be doubted but that the pol. would be void by reason of the concealment of a material fact, and he would have no right to recover in case of loss, even if the cause of fire were wholly unconnected with the special uncommunicated risk, and were unaffected by it. This he states on the authority of *Wedderburn v. Bell*, 1807.

In the U.S., where the bus. of fire ins. is carried on with a much more strict regard to the conditions of the pol. than in Gt. Brit., there have been some highly instructive decisions in the matter of Concealment, several of which we propose to notice here.

In an action on a pol. by insured, the jury were held to have been correctly instructed, that if certain facts, as a threat to burn the building insured, were known to the plaintiff, and were not made known to the Co., and were material to the risk, they should find for the defendants, although the plaintiff did not suppose there was any particular reason for fear.—*Curry v. Commonwealth Ins. Co.*, 1830.

The *New York Fire Ins. Co.*, after issuing a pol. on a "stock of dry goods," learned that the insured was a man of bad reputation, and had already burned up one or two houses. They then reinsured the risk with the *New York Bowery Ins. Co.*, withholding the information they had received:—*Held*, that the failure to make known the information to the reinsurer, whether from design or mistake, would avoid the pol. of reinsurance, if the information was material to the risk, or would have induced a higher rate of prem. if known.—*New York Bowery Ins. Co. v. New York Fire Ins. Co.*, 1837.

If the insured is induced to insure by an attempt to set fire to an adjacent house, the destruction of which would necessarily have destroyed his own, and conceals the fact from the underwriters, he cannot recover.—*Walden v. Louisiana Ins. Co.*, 1838.

An inadvertent omission of facts, if material to the risk, and such as the party insured should have known to be so, will render the pol. void.—*Dennison v. Thomaston Mut. Ins. Co.*, 1841.

The tenant or lessee of premises, effecting ins. on stock of goods, is not bound to disclose or communicate to the insurers the names or pursuits of sub-tenants living on the premises. If insurers wish to guard against the risk from certain pursuits or occupations of tenants or sub-tenants, they have it in their power to insert in the pol. a warranty to that effect; which being a condition precedent, whether material or immaterial, must be complied with before any action can be maintained on the pol.—*Lyon v. Commercial Ins. Co.*, 1842.

If premises were partly occupied by "Gamblers," and the underwriter made objection to the vicinity of another gaming estab., and the ins. did not make known the presence of "Gamblers" in the premises to be ins., it would void the pol., if jury should find that the risk was thereby increased.—*Lyon v. Commercial Ins. Co.*, 1842.

If insurer takes risk, without inquiry, and relying on his own knowledge, there must, in order to avoid the pol., exist something unusual to enhance the risk. If ins. is on cotton factory, and lamps, causing the loss, are used in the picking room, it must be shown to avoid the pol. that the use of lamps in the picking room was unusual.—*Clarke v. Manufacturing Ins. Co.*, 1850.

Where the constitution and bye-laws of a mut. ins. asso. require nothing further from the insured than an application for ins., and where they provide for a survey by the asso., and under such pol. "on personal property in a mill," the ins. did not make known the existence of a "corn kiln" attached to the mill, and from which the fire originated:—*Held*, that in the absence of any inquiry on the subject, the insured was not bound to disclose the existence of the "corn kiln."—*Satterthwaite v. Mut. Beneficial Ins. Co.*, 1850.

At the time of application for ins. on "tavern, woodhouse," etc., insured had commenced preparations for erecting a new building near the ones to be ins., but did not notify insurers of such intention, no inquiries having been made on the subject:—*Held*, that the failure to communicate such intention to the insurers was not a concealment that avoided the pol.—*Gates v. Maddison County Mut.*, 1851.

Where the omission to state certain facts in the application is relied on in defence to an action on the pol., the question presented, in the absence of warranty, would be upon the materiality of the fact concealed to the risk; and that is a question for the jury, and ought to be submitted to them.—*Gates v. Maddison County Mut.*, 1848, 1851.

The fact of a pending litigation affecting the premises ins. not having been communicated to the insurer at the time of executing the pol. will not avoid the pol.—*Hill v. Lafayette Ins. Co.*, 1853.

A suppression or misrepresentation of material facts, though from ignorance, mistake, or negligence, stands on the same ground in its effect on a pol. as if such suppression or misrepresentation were wilful. But the principle on which this rule is founded can have no application to the conduct of the insured subsequent to the making of the contract.—*Miller v. Western Farmers Mut.*, 1854.

It is not sufficient to aver in a plea to an action upon a pol. that when the application for ins. was made, the insured concealed a fact material to the risk, and which would have increased it if known. It must also appear that the insured knew of the existence of the fact, and that the fact itself was not open and notorious at the time to all parties. It is not every fact within the knowledge of the insured that he is bound to disclose, and if

such facts as the law will require him to disclose are within the knowledge of the insurers, or so connected with the subject insured that his knowledge may be fairly inferred, the allegation of concealment is unsupported.—*Merchants and Manufacturers Mut. Ins. Co. v. Washington Mut.*, 1855.

When several fires have occurred in and about the house before applying for ins., a failure to disclose such facts to agent is a concealment fatal to the pol.; but if enough is made known to put the co. or agent upon inquiry for more, and they fail to inquire, the ins. is not bound to force his knowledge upon them.—*Beebe v. Hartford Mut.*, 1856.

Where it is provided in the application for ins., which is made a part of the pol., that any concealment of the condition or character of the property will make the pol. void, and the applicant represented the property free from incumbrance, when there was at the time a mortgage upon a part of it:—*Held*, that such representation was a breach of the contract, rendering the pol. void, and this whether the false representation were by mistake or design.—*Gould v. York County Mut.*, 1859.

Where specific descriptions of the property are required by the terms of an ins. office, which terms are referred to and incorp. as part of the conditions of the pol. of ins.:—*Held*, that the suppression of an immaterial fact does not invalidate the pol.—*Whitehurst v. Fayetteville Mut.*, 1859.

The pol. stipulated that the representations in the application should be a warranty on the part of the insured, and contain a just, full, and true exposition of all the facts and circumstances in regard to the condition, situation, and value of the property insured. The application stated that there was a carpenter's shop near the building sought to be insured:—*Held*, that the application was not required to state in what manner the shop was heated—unless at least there was something unusual, something not "customary" in the mode of heating.—*Girard Fire and Marine Ins. Co. v. Stephenson*, 1860.

A misrepresentation or concealment in regard to the title of the insured in the property will avoid a pol. issued by a mut. ins. co., whose charter, subject to which the pol. is issued, makes the prem. notes liens on the property insured.—*Mut. Ins. Co. v. Deale*, 1861.

An ins. co. is chargeable with knowledge of all the facts stated by an applicant for ins. to the co.'s agent, respecting the applicant's title and int. in the insured premises. And if the applicant, on applying to such agent for ins., truly state to him the real condition of the property, he cannot be held to have made any mis-statement, or practised any concealment in reference to the co., notwithstanding the written application drawn up by the agent varies from such statement.—*Hodgkins v. Montgomery County Mut.*, 1861.

[For these American cases we are indebted to the *Digest of Fire Ins. Decisions*, 2nd ed. N. Y., 1868.]

Accident Ins.—A co., by its form of proposal for ins. against accidents, required the "name, residence, profession or occupation of the person whose life is proposed to be insured," to be stated. The proposer filled up the form thus, "J. T. P—, Esq., Saltly Hall, Warwickshire." He lived at Saltly Hall, but he also kept an ironmonger's shop at D., in the same county. The Co. thereupon insured his life against accidents, by a pol. under which the rate of prem. was the same as would have been payable had he described himself as an ironmonger. In the pol. was a proviso, "that if any statement or allegation contained in the proposal be untrue, or if this pol. has been obtained, or shall be hereafter continued through any misrepresentation, concealment, or untrue avowment whatsoever, then this pol. shall be void:—"*Held*, that the pol. was not rendered void by the omission to state that he was an ironmonger.—*Perrins v. Marine and Gen. Travellers Ins. So.*, heard in 1859. Approved on appeal to the Exchequer Chamber in 1860.

CONCESSION.—A privilege or a right granted by a Gov. to persons or asso. to do certain things advantageous to the public interest—as to construct a railway, found an ins. asso., etc., etc. The parties who obtain the concession are called *concessionaires*. No ins. asso. can commence bus. in the Prussian dominions without having obtained such a license or concession. The same, we believe, in Austria.

CONCORDIA INS. CO. OF AMSTERDAM.—This Co., which carried on bus. in Lond. for some time, passed into liq. in 1872.

CONCRETION (from *concreresco*, to grow together).—A term generally applied to calculus, and to osseous deposits in certain organs, as in the liver and lungs. There are various minor distinctions.

CONCURRENT.—Acting in conjunction; agreeing in the same act; contributing to the same event; contemporaneous.

CONCURRENT JURISDICTION.—The jurisdiction of several different tribunals, each authorized to deal with the same subject-matter at the choice of the suitor.

It is well known to all lawyers, and should be known to man. of ins. asso., that the Courts of Equity have concurrent jurisdiction with the Courts of Law in reference to claims arising under ins. contracts. The common form in which this concurrent jurisdiction is invoked is where a claimant under an ins. pol. sues the co. at law, and the co. appeals to the Court of Equity to restrain the progress of the action on the ground of the contract having been obtained by misrepresentation or fraud. The principle upon which the Court of Equity is usually governed in such cases was well expressed by V. C. Malins

in the case of *Hoare* (Chairman of *Sun L.*) v. *Bembridge* (executor), which arose in July, 1872. The facts were very simple. A Mrs. Formby, of Exeter, was ins. as a first-class life in the *Sun* Office in Dec., 1870, for £5000; she died on 1st Feb., 1872. The Office, after the death, obtained information which led them to suspect that fraudulent statements had been made; or important facts had been fraudulently concealed. It therefore applied to the Court of Equity to decree that the pol. be delivered up for cancellation; and for an injunction to restrain the executor from prosecuting any action at law against the Co. under this pol. The V.C. delivered a judgment, of which the following is the substance:

It could not be denied that in a case of this kind, involving the question of fraud, the Court of Chancery had concurrent jurisdiction with the Courts of Common Law, and that the consideration of the question whether or not this pol. was fraudulently obtained, was as much within the jurisdiction of the one Court as the other. But it must be borne in mind that the ordinary remedy was by action at law, and it was most important that it should be understood by insurers, whether underwriters or fire or life insurers, that the proper and convenient tribunal to decide such questions was a Court of Common Law, and that it was not competent for such persons to file a bill in Chancery and take the case out of the proper tribunal, where the witnesses could be seen and their demeanour observed. The grounds on which the society disputed the pol. in Chancery were equally available to them as a defence to the action at Common Law. A good deal would depend upon medical evidence, and his Honour could see no ground of equity or expediency in transferring a case of this nature from a Court of Common Law, where the evidence was oral, to be tried in the Court of Chancery upon written evidence. On the ground, therefore, not that the Court of Chancery had no jurisdiction, but that it would be most inconvenient to exercise that jurisdiction in cases of this nature, his Honour refused the motion.

CONCURRENT POLICIES (*F. Ins.*)—These are such as are concurrent as regards property covered, without reference to average or other conditions.—*Hore*. [AVERAGE POL., *Fire*.]

CONCUSSION OF THE BRAIN (from *concutio*, to shake together).—A term simply denoting a shaking or general disturbance of the minute parts of the brain; sudden interruption of the functions of the brain, caused by a blow, or other mechanical injury of the head. Deaths from this cause are classed as VIOLENT DEATHS.

CONDEMNATION.—When a ship is condemned as incapable of pursuing her voyage, it ought to be ascertained whether this was the consequence of *accidents*, and the violence of the sea, or of her *age and decay*, even at the time of her departure; for in the latter case the insurers are not answerable.—*Valin's Commentaries*. Condemnation by a Prize Court is not necessary to make the underwriters liable in case of capture. [CAPTURE.] [PRIZE COURTS.]

CONDITION (Lat. *conditio*).—A restraint annexed to a thing, by the non-performance of which one party to a contract receives prejudice or loss; or the other receives an advantage not stipulated. A condition is said to be *affirmative* when it provides for doing an act; *negative* when it binds not to do an act; *compulsory* as to things which must be done, as payment of rent, prems., etc.

CONDITION PRECEDENT.—Something that must be done in order to estab. a claim for something else to be done: as "proof of loss" must be rendered before an action can be maintained under a F. pol.; or proof of injury, or cause of death, before a claim can be estab. under an accident pol.

CONDITIONS OF INSURANCE.—Each branch of Ins. is in practice governed by certain essential conditions, which, although variable to a considerable extent by the usages of different offices, are in the main adhered to. It will be more convenient to discuss these in connexion with each particular branch of the bus., than in a collected form here. See ACCIDENT INS., FIRE INS., LIFE INS., MARINE INS., etc.

CONDORCET, MARQUIS DE.—A French Mathematician and Philosopher, born in Picardy in 1743, and died in 1794. In 1785 he pub. in Paris, *Essais sur l'Application de l'Analyse a la Probabilité des Décisions rendues a la Pluralité de Voix*. Galloway speaks of this as a work of great ingenuity, abounding with interesting remarks on subjects of the highest importance to humanity.

Condorcet left behind him at his death the plan of reducing to mathematical laws all the social questions which are acted upon by the free will of man, as well as those which are fixed and immutable in their nature. To this new application of science he gave the appropriate name of *Mathématique Sociale*. M. Quetelet has more recently followed up the same subject. [CHANCES, DOCTRINE OF.] [PROBABILITY, MATHEMATICAL THEORY OF.]

CONDUITS.—In early days Lond. was very proud of her conduits. According to Stow, when the various brooks which in early times ran through the City became impeded, or rendered impure, "then the citizens were forced to seek sweet waters abroad, whereof some at the request of Henry III., 1236, were, for the profit of the City and good of the whole realm thither repairing, to wit, for the poor to drink, and for the rich to dress their meat, granted to the citizens by one Gilbert Sanford, with liberty to convey water from the town of Tyburn by pipes of lead into the City." Anderson records—under date 1237—"The City of London now obtained a grant from the Lord of the Manor of Tyburn (then a village) of certain springs in that manor (near Marybon), in order for the conveying of their water by leaden pipes (of six inches diameter) into the said City." Another grant was made in 1354. The "great conduit" from Tyburn was not opened until 1285. On the occasion of the marriage of Henry VIII. with Anna Boleyn, 1st June, 1533, this conduit ran with "red and white wine all the afternoon." These

conduits were the precursors of the present Lond. water cos., and no doubt were found very useful, having regard to the appliances against fire in these early times.

Dr. Samuel Rolle, who in 1667 preached 110 sermons "improving and commemorating the Fire of London," offered the following curious reflections concerning these "helpless conveniences":

Methinks these several conduits stood like so many little but strong forts, to confront the great enemy fire. There, methinks, the water was entrenched and engarrisoned. The several pipes charged with water, till, by the turning of the cock, they were discharged again, were as so many soldiers within these forts, ready with their musketry, to keep and defend our houses. And look how enemies deal with castles they think impregnable—they attempt to storm them by close siege; so went the fire to work with these little castles of stone—spoiled them or almost spoiled them; and hath for the present cut off those supplies of water which had vent to flow them, melting the leaden channels which conveyed them, and thereby starving the garrison it could not take by storm. [WATER COMPANIES.]

CONDY, MR., has pub. in the U.S. *The Law of Ins.* in 2 vols. We have never seen this work, but hope to be able to speak of it hereafter.

CONFIDENCE FIRE AND LIFE, projected in 1854, as was also the *Confidence Fire, Life, and Indemnity*; but failing to inspire the element indicated in their titles, they fell through.

CONFIDENT LIFE AND FIRE ASSU. AND LOAN CO., founded in 1856, with an authorized cap. of £20,000, of which but £4000 was in the first instance regis. Among the objects of the Co. were the following:

1. For enabling the industrial classes by the principle of L. assu., conducted by strict economy and equity, to provide sums of money to be paid at the death of each assurer to the widow, widower, or the legal representative of the assu.
2. Providing for children a sum sufficient to apprentice or otherwise promote their interest; . . . either by weekly, monthly, or quarterly payments. . . .
3. Providing sums in sickness for those who depend on their labour for support; payments and benefits varying according to the condition and age of the assured.
4. For securing a weekly maintenance in old age, so that in after years they may enjoy the fruits of a frugal and well-spent life.
5. For granting annu. providing against the casualties in trade, or circumstances attending this age of uncertainty, etc., etc.

The prosp. said:

The directors of the *Confident*, . . . being thoroughly conversant with the condition and circumstances of the middle and working classes, have introduced into this inst. some new features of assu., peculiarly adapted to the wants and requirements of those classes. In consequence of the failure of many sick benefit sos. through being based on false principles, and from a deep conviction of the necessity of enabling persons of the industrial classes to make some provision for their families in case of sickness, an elaborate T. has been prepared for that purpose from the most reliable data, called the Benefit Sick T., by reference to which it will be seen that a person 29 years of age can, by paying 6*d.* per week, entitle himself to receive 12*s.* 6*d.* during sickness, and £10 in case of death. . .

The Co. carried on bus. down to 1864, when its connexions were handed over to the *General Provident*. Mr. James Mathers was the Man.

CONFIRMATION EXPEDE.—A term in Scotch Law, used in relation to the granting of probates, or letters of administration.

CONFISCATION.—The condemnation and adjudication of goods or effects to the public Treasury, as of ships trading in contraband of war, etc. It is very general in time of war for owners seeking ins. of their ships to warrant them against Confiscation at their port of discharge. Many nice questions have arisen on this point, some of which we shall discuss under SEIZURE, and others under WARRANTIES.

CONGESTION (from *congero*, to amass).—Where there is an unnatural accumulation of blood in the capillary vessels of any part of the sanguiferous system, the organ in which it takes place, and the functions of which are disturbed, is said to suffer under congestion; it induces a morbid condition of the vessels of the part affected, which when once estab. is difficult of removal. Congestion of the brain, liver, or lungs, is a frequent effect of fevers, though generally consequent upon a previous morbid condition of the organs.—*Brande.*

CONGESTION OF LUNGS, DEATHS FROM (Class, LOCAL; Order, *Diseases of Respiratory Organs*).—The deaths from this cause in England are numerous. In 1865 they were 2314: males, 1219; females, 1095. In 1866 they were 2480: males, 1354; females, 1126. In 1867 they were 2393: males, 1284; females, 1109. The ages at death of males in 1867 were: under 5, 630; between 5 and 25, 75; between 25 and 45, 128; between 45 and 75, 354; between 75 and end of life, 102. The ages of females: under 5, 480; between 5 and 25, 79; between 25 and 45, 106; between 45 and 75, 290; between 75 and end of life, 154.

CONGREVE, SIR WILLIAM, obtained, in 1812, a patent for an arrangement of waterpipes in buildings, through which, by turning a cock, a supply of water could be instantly secured, and the building deluged. [FIRE ANNIHILATORS.]

CONJECTURE.—Mr. Arthur Morgan in one of his early addresses to the Court of the *Equitable So.* said, in relation to the operations of Life Ins., "It can never be safe to substitute conjecture for inquiry." This is especially so in every department of the actuary's calling. It was conjecture which for a long period led to the belief that Liverpool was one of the most healthy towns in the U.K. It has led to many other equally serious mistakes in matters of vital statistics.

CONJUGAL OFFICE, Hanging Sword Court, Fleet Street, founded in 1711, for ins. on Births, Marriages, Servants, and Single Lives.

CONNECTICUT, INS. LAWS OF THE STATE OF.—In this State there are very ample laws

for the constitution and regulation of Ins. Asso. An Ins. Commissioner has charge of the Ins. Department. Life cos. have to pay a license-fee of 50 dols. ann. ; with 10 dols. per ann. certificate of compliance ; 5 dols. with copy of report. Statement made up to 31st Dec. each year. Power of attorney must be filed by duly appointed officer or agent. The pol. are valued by the department at a charge of 1 ct. for each 1000 dol. insured. A tax of 2 p.c. is levied upon prem. receipts. The legis. as to other States is reciprocal. Fire cos. pay 10 dols. on filing statement ; 2 dols. for agent's certificate. A power of attorney to be filed by chief agent ; legislation reciprocal, viz. ins. cos. of other States doing bus. in Connecticut required to pay the same taxes, fines, penalties, and make the same deposits, etc., which ins. cos. of the State of C. doing bus. in other States are required to pay and make in certain cases.

The following measure was enacted by the Connecticut Legislature in 1867 :

Sec. 1. That all pol. of ins. issued by F. ins. cos. of this State, after the 30th day of Sept. next, shall contain, in the printed forms annexed, *uniform conditions* as to the risk on which the ins. is based, said conditions to be approved by the General Ins. Commissioner of the State, and no conditions except those so approved, not written in full in the body of the pol., shall be valid.

Sec. 2. No foreign ins. co. doing bus. in this State shall issue policies to citizens thereof, embodying *printed conditions* not contained in the forms authorized by said Commissioner for policies of cos. incorp. in this State.

Sec. 3. Any ins. co., or agent thereof, violating any of the provisions of this Act, shall be liable to a penalty equal to double the amount of prem. charged on the risk on which pol. is issued. [FIRE INS., CONDITIONS OF.]

CONSANESCENT (from *consanescere*, to become whole or sound, as of wounds).—This term might well be applied to wounds which are in progress of healing, and would be a fit companion to *convalescent*, as applied to the general state of the system when recovering from disease.—*Hoblyn*.

CONSANGUINITY.—The connexion or relation of persons descended from the same stock or common ancestor. It is either lineal or collateral. Lineal is that which subsists between persons of whom one is descended in a direct line from the other, as between son, father, grandfather, great-grandfather, and so upwards in the direct ascending line ; or between son, grandson, great-grandson, and so downwards in the direct descending line. Collateral agree with the lineal in this, that they descend from the same stock or ancestor ; but differ in this, that they do not descend one from the other.—*Blackstone*.

CONSCRIPTION, INSURANCES OF SUBSTITUTES FOR.—In Continental countries, where the ranks of the army are replenished by ann. or other periodical conscription, it has long been the practice to provide substitutes by means of ins. The bus. is usually conducted by individuals, *Agents de Remplacement*, and not by asso. Persons within the ages liable to be drawn for military service, and not wishing to be drawn, pay an ann. or other contribution by way of prem. for ins. either that a proper substitute shall be provided, or that the pecuniary fine consequent upon non-service (where escape by a fine is permitted) shall be paid. The bus. often assumes large proportions. [MILITARY SERVICE, INS. AGAINST.]

CONSEQUENTIAL DAMAGES.—This designation is applied to losses or injuries which follow an act or event, but are not direct or immediate upon it. They would therefore be more correctly called "inconsequential damages."

The law has been always slow to admit claims for so-called consequential damages under breach of contract, prob. from the uncertainty or hypothetical nature of such claims. If a railway co. fail to carry a passenger safely to his destined station, in time to keep a bus. appointment, or to attend a market or fair, the Courts do not usually award damages to cover loss of profits—that is, profits which he might have made if he had arrived at the expected time : for he might have made a loss.

Nearly all classes of ins. asso. are liable to have claims of this character made upon them. They cannot indeed occur in *Life* ins. In *Marine* and *Fire* ins. they are, or have been, of very frequent occurrence. *Accident* ins. cos., *Hail* ins. cos., and *Glass* ins. cos., are peculiarly liable to them. In *Accident* ins. a person liable, say, to gout, receives a slight injury, which to a healthy man would cause no actual disability. The gouty man becomes disabled by reason of his latent disease (gout), and hence claims upon the co. It is clear that his disablement arises from the remote, and not the direct or immediate consequences of the injury received. In *Glass* ins., a tradesman has his window broken, and by reason of the access so obtained, goods are either spoiled by the weather or stolen. He cannot claim upon the Co. in either case. The glass was insured against accidental breakage ; but the consequences which flow from the breakage are not insured against. In *Hail* ins. the claims are obliged, by reason of the nature of the bus., to partake in some sort of consequential damage. Corn and seed, etc., in process of maturing, cannot be estimated simply at their value at the moment of injury. The prospective value has, in the very nature of the case, to be regarded. In *Carriage* ins., a pol.-holder cannot recover compensation for the inconvenience to which he may be subjected by reason of loss of use of his vehicle. The reasonable cost of repair is the insurable measure of his damage. It will be instructive to notice more in detail a few points in practice, and a few of the cases, which have arisen. We have already mentioned some points under CLAIMS.

In *Marine* ins. claims for consequential damages arise more frequently than in any other branch of ins. bus. They present themselves in a peculiar form. The want of proper attention to the pumps, causing an accumulation of bilge-water, may not only

produce damage by actual contact, but may originate noxious exhalations, which deteriorate both the character and appearance of delicate articles. Again, the presence of water in the cargo frequently destroys the labels and brands by which alone the better class of goods can be distinguished from the inferior. The market value is thereby much diminished. Further, contiguity with destructive agents, such as wet and heated packages, oil, tar, etc., is a frequent source of claims. In many instances these should rank against the shipowner for bad stowage, rather than against the underwriter. In the case of tea, the claims were at one time so numerous that the underwriters have inserted a special clause in pol. to the effect that no claim can be admitted unless it is proved that the contents of each package have been in actual contact with sea-water.

In Fire ins. claims for consequential damages arise under a variety of circumstances. We propose to note a few of the more instructive cases.

In 1834 there came before the English Courts the case of *Wright v. Pole*. Wright had insured in the *Sun Fire* a certain sum on his "interest in the Ship Inn :"—*Held*, that he could not recover for loss of custom or profits while the inn was being repaired after injury by fire.

In 1842, in the case of *Leonarda v. Phenix Ins. Co.*, Lond., it was laid down that the general principle that the insurers are bound to adjust a loss upon the principle of replacing the insured as near as may be in the situation they were in before the fire, has never been understood to extend to the profits or fruits which the latter was drawing or might have drawn from the thing insured. Rent even forms a distinctly insurable interest. [RENT INS.]

In the case of *Menzies v. North British Ins. Co.*, before the Scotch Courts in 1847, it was *held*,—ins. against fire does not cover consequential damages from loss of occupancy while the buildings are under repair, nor loss of profits that might have been made by occupant by his trade, nor wages of servants which occupant had to pay, though in consequence of the fire he could not employ them. [PROFITS, INS. OF.]

In the U.S. Courts there have been several decisions which harmonize with our own. Thus in the case of *Elmaher v. Franklin Ins. Co.*, 1847, it was thus laid down :—The ins. cannot recover consequential damages; the only loss or damage ins. against are those happening by fire; and if the co. neglect to repair or make good the same to the insured, the only compensation to which he is entitled is the actual loss by fire, and int. on that sum from the time it was due.

In the case of *Niblo v. North American Ins. Co.*, 1848, it was *held*, that on an ins. against loss or damage by fire on a building simply, and its injury or destruction by the peril ins. against, the insured cannot recover for his loss occasioned by the interruption or destruction of his bus. carried on in such building, nor for any gains or profits which were morally certain to enure to him if he had remained uninjured to the expiration of pol.

In regard to *Glass ins.*, the case of *Marsden v. City and County Ins. Co.*, which was before the English Courts in 1866, is important. The facts were as follow :—An ins. was effected upon plate-glass for "all loss or damage originating from any cause whatsoever except fire, breakage during removal, alteration or repair of the premises." On the 25th March, 1865, a fire broke out in a house adjoining that of the plaintiff, and when it reached the back part of his premises, some 20 or 30 yards from the windows ins., the plaintiff took down the shutters of his shop-door, and called in the assistance of his neighbours to remove his stock-in-trade and his furniture. Soon afterwards the mob tore down the shutters of his shop, broke the windows, and seized most of the articles with which the windows were dressed. The question before the Court was, whether the ins. office was liable, and it was *held*, that it was; that the loss was not within the exception; that the fire was but the remote cause of the damage; and that the fire was but the remote cause of the mob attracted by it.

CONSERVATIVE FIRE AND LIFE INS. CO., projected in 1854, but it never achieved a permanent or solid constitution.

CONSIDERATION.—The price, motive, or matter of inducement to a contract. The "consideration" is the very life of a simple contract, or parol agreement, while a specialty contract [*i.e.* contract under seal] does not require a consideration to make it obligatory at Law—the Law always assuming a sufficient consideration, which the parties, except in special cases, are stopped from denying. The consideration must always be lawful in itself. There are some other refinements, which we need not follow up now. If the consideration be so insufficient as to "shock the conscience," Equity will quash the contract, upon the ground that such great inequality betokens fraud or undue advantage on the one side, or mental incompetency on the other.—*Wharton*. [REVERSIONARY INTERESTS.] [UNCONSCIONABLE BARGAINS.]

CONSIGNMENT.—The delivery of goods to another for sale or purchase. He who consigns them is called the *Consignor*; and the person to whom they are sent is called the *Consignee*.

CONSOLATO DEL MARE, IL (*Italian*); **CONSOLAT DE MAR** (*Spanish*); or **CONSULAT DE LA MER** (*French*), sometimes **CONSULADO DEL MAR**.—This is admitted to be the earliest general code of maritime law in Modern Europe of which we now have any trace. It contains a pretty complete collection of maxims and usages for the regulation of

maritime trade, adapted to the state of society and to the circumstances of the times in which it was composed; and (adds Mr. Reddie) from its intrinsic excellence, and the excellent nature of its principles, it has been voluntarily adopted almost wholly by some, and to a certain extent by others, of the different European nations who have cultivated navigation and commerce.

We have to examine its hist. here mainly in so far as it may throw any light upon the practice of marine or any other branches of ins.

That the *Consolato* is not a mere copy, translation, or compilation from any ancient classic code, is now generally admitted. As its regulations are entirely of a practical character, the prob. is that the code was formed gradually, and grew up rather in the shape of customs or usages at various places, proximate or remote, and was, for some special purpose, or on some extraordinary occasion, made the subject of compilation. The occasion and the purpose prob. combined in the estab. of the Consular Courts, by the Kings of Arragon, in the 14th century. That the compilers of the *Consolato* were well instructed in the principles of the Roman law, of the Basilica, and of the legislation of the cities of France and Spain, which carried on the commerce of the Mediterranean, and of the coasts of Asia and Africa, seems clear. This fact probably led Grotius to attribute to it a classic origin.

M. Boucher, in his ed. of the *Consolato* (pub. 1808), attempts to show that it was composed at Barcelona in the year 900. In a chronological preface contained in most modern eds. it is intimated that the laws contained therein have been approved and adopted, or at least sanctioned, by a great number of sovereigns and trading republics, as follows, viz. at Rome in 1075; at Acre, by King Louis and the Count of Toulouse, in 1102; by the Pisans in Majorca in 1102; at Pisa in 1118; at Marseilles in 1162; by the Count of Barcelona in 1175; at Genoa in 1186; by the Venetians at Constantinople in 1215; and at Paris in 1250. We mention these details only for the purpose of saying that they are inaccurate; and to allow them to remain uncontradicted is to tolerate historical confusion hereafter. Capmany in his work of 1779 has demolished this wonderful array of chronology.

The best authorities have hesitated as to whether the origin of the *Consolato* is to be attributed to Marseilles or Barcelona. That Marseilles is a more ancient city in point of commerce than Barcelona, and that it had commercial relations with the countries mentioned in the *Consolato*, are facts now generally conceded. Mornac, Giballinus, Vinnius, and Giannone, all say that the *Consolato* was composed in the time of St. Louis, whose reign commenced in 1226, and ended in 1270. This opinion, too, receives some support from the authority given by Peter III. to the Judges of the Consular Court instituted by him at Valencia in 1283; and yet again in 1343. [CONSULAR COURTS.] Capmany supports the same view, and attributes the origin to Barcelona; in which Pardessus, the greatest authority, and a Frenchman, finally concurs.

On the other hand, M. José Salet, a learned Catalanian of the present century, dates the *Consolato* in the 14th century—a view in which Mr. Justice Park and Mr. Sergeant Marshall both concurred. The first incontestable document in which the *Consolato* is named is the Marine Ordin. of Barcelona, 1435—the 3rd and 5th chapters of which designate it by the title it now bears, and cite exactly its text.

It is generally admitted that the *Consolato* superseded the use of the *Almofitan* Code. It prob. had the same effect upon the separate maritime laws or customs of Marseilles, Pisa, Genoa, Venice, and Barcelona. They were prob. all intended to be embodied in the *Consolato*, and thus much jealousy and confusion would be avoided.

It seems clear that the *Consolato* was circulated in manuscript for a considerable time before it was printed; and in that period it prob. received many additions, and became the subject of considerable alteration. The earliest printed ed. of which we have any knowledge (there appears to have been a previous ed.) is that of 1494, which contains the following interesting announcement:

Whereas, in consequence of there being found in the Book of the *Consolato* many alterations, both in the expression and in the decisions, and many errors, to remedy that, I, Francis Cercelles, from charity merely, and with a great deal of labour, after having compared and consulted with persons of skill and experience, shipowners as well as merchants, mariners, and others—after having examined many manuscripts—have exerted myself to correct the present book as far as has been possible for me.

The estimation in which the compilation was held may be gathered in the fact of the eagerness with which eds. were multiplied very early after the discovery of printing. Hence, beyond the ed. of 1494 (of which a copy still exists in the Royal Library of France), and the surmised previous ed., there was pub. an ed. in 1502; another, 1517; another, 1523; and another, 1592—the last, as also that of 1502, by order of the Consuls of Barcelona. The work was translated into Spanish by F. Diaz de Roman, Valencia, 1539. The earliest known translation into Italian was by Pedrizano, pub. in Venice, 1549. This translation, although several times printed, is very inaccurate. The earliest translation into French was that by Mayssoni, pub. at Marseilles in 1577. This is an imperfect ed., two chapters being omitted. Another ed. was pub. at Aix in 1635; then we have that of Boucher in 1808. Cleirac did not make a translation. Emerigon undertook the task from an Italian ed., but abandoned it on account of the difficulty.

There were two other Spanish eds., that by Cayetan de Palleya in 1732; and the other

by Capmany in 1791. Westerveen translated it into Dutch from the Italian version, and the same was pub. at Leyden in 1704, and at Amsterdam in 1726. He refers to a Catalan ed. In 1790 Engelbrecht pub. in his *Corpus Juris Nautici*, a German translation of what Westerveen had translated into Dutch; but according to M. Meyer, the same is inaccurate. Lange mentions that David Fischer, Consul at Rostock, translated the *Consolato* into Latin; but this translation is not generally known. The latest and best ed. is undoubtedly that pub. by Pardessus in 1831, edited from the *princeps* ed. of 1494, still in the Royal Library of France. Wonderful to relate, there has been no English ed. of this work, although it can hardly be doubted that Lord Mansfield, Lord Stowell, and other great English lawyers, were familiar with its provisions, and have incorporated many of them into their decisions in our English Courts.

We are disposed to adopt the following conclusions, arrived at by Mr. Reddie after a painstaking investigation of the best authorities :

The genuine *Libro del Consolato del Mare*, which was sanctioned by a general and almost universal voluntary adoption by the Mediterranean States, detached from the municipal and other regulations peculiar to different countries which have been added to it in the printed eds., consists, as we have seen, of 252 chapters. It contains various repetitions, almost every chap. forming a sort of whole of itself. The different subjects of which it treats are not digested or methodically arranged; and it is evidently a monument of practical wisdom, not of taste or genius. In the work itself it is stated that the customs of which it is composed were collected by wise and skilful men, during voyages and travels to various countries and places. From a perusal, too, it is manifest that in compiling the code, the object of the authors was to combine the practical wisdom of former times, and of all the different States of the Mediterranean; and, unquestionably, whoever they were, these authors in thus collecting from all quarters, and in selecting what was most equitable and expedient, display a liberality and a skill highly honourable to an age which we are accustomed to consider as barbarous.

The *Consolato*, as above and before indicated, is by no means a complete maritime code. It treats of *Average*, as we have already shown [AVERAGE, MARITIME]; but it contains no rules with regard to loans on *Bottomry*, although it sufficiently admits the prevalence of the practice [BOTTOMRY]. It contains the leading principles of the contract of AFFREIGHTMENT; and, likewise, the rudiments of those marine documents now known by the name of the Charter-party and Bill of Lading. Truth compels us to add that it has no reference, direct or inferential, to the practice of marine ins. Now, as we have absolute mention of the practice of that branch of ins. in the Ordin. of Barcelona, in 1435, with direct reference to its earlier practice, we must at least place the date of the compilation of the *Consolato* anterior to that period—as we have already done.

Some of the French writers have spoken very disparagingly of this compilation; but Mr. Justice Park declares that upon examination it is a work of considerable merit.

Mr. Hendriks says it would be only just to the Barcelonese if these laws were always quoted by the name of *Consolat de Mar*, the Catalan, instead of *Il Consolato del Mare*, the Italian designation.

CONSOLIDATED ANNUITIES.—See CONSOLS.

CONSOLIDATED ANNUITY ENDOWMENT SO., “for granting contingent, reversionary, and other annu., by small ann. or quarterly payments, on the orig. plan of the *General Annu. Endowment So.*, estab. 1829, which, having accumulated a cap. of a quarter of a million, has ceased to receive new members; and for ins. to the widows and orphans of the clergy of the Church of England residences and endowments.” The Co. was “to be incorp. by Special Act of Parl.” Its President was Lord Erskine, while two of its Vice-Presidents were Irish Bishops; and on its board were several clergymen, including the Rev. Edward Johnstone, of Hampton. Nothing was said about the cap. of this particular enterprise. The prosp. said :

The successful results of the *General Annu. Endow. So.* have induced its founder to endeavour to extend its advantages and usefulness to the public, and the clergy in particular, on the scale of liberality orig. intended, that is—To enable persons whose incomes terminate with their lives, to secure annu. to their survivors, viz. males to the age of 21; widows and female nominees while they remain unmarried; and to admit females to subs. and to nominate their children. To persons in trade it holds out peculiar advantages, as the annu. cannot be lost or sold under any contingency, so long as the rules of the So. are observed. This asso., by its equitable arrangements, will secure to the nominees of its members an amount of annu. in proportion to the prems., which no other inst. in the U.K., under different circumstances, can make any pretensions to pay. This will be mainly effected by the adoption, as part of its fundamental constitution, of the peculiar principle on which the fund was estab. in India by the late Lord Clive, as well as a so. at Berlin of the standing of nearly a hundred years, viz. of suspending the annu. to female nominees during marriage, and thus by making the payment of the annu. contingent upon that event, as well as upon survivorship, this So. is enabled to accomplish that which no office, confining itself to the latter contingency alone, can effect. In thus suspending the annu. during a period when, in the great majority of cases, it is not absolutely required, it is plain that a great good is obtained, in a very considerable increase to the amount, at a sacrifice merely nominal and of small importance.

Annu. may be secured to males for life, if idiots or cripples, on the payment of add. prems. Fathers may be nominated without any add. prem. or charge for disparity. No member will be permitted to take more than 12 annu., of which only 6 will be granted to one nominee.

The prems. of all members must be paid for 5 years before their nominees can receive any annu., but the nominees of those members who may die previously to the expiration of that time will be relieved from further payments, on giving notice in writing to the office of their inability to continue them; the arrears, with 5 p.c. int. thereon, will be deducted from the first annu. when payable; but by payment of *double prems. during the first 5 years only*, and afterwards of single prems., the annu. will be payable to the nominee from the date of the death of the member. All prems. must be paid in advance, either ann., half-yearly, or quarterly, at the option of the members. The disparity money must be paid either in one payment or by instalments. . . . Persons are not required to nominate at the time of their becoming members, but may do so at any future period, without any extra charge, except

for disparity of age, on proof of health being satisfactory to the Council—who, however, shall (in case of health being unsatisfactory) return to the member so disqualified a sum not exceeding two-thirds of the whole prem. paid by such member. Should members, being bachelors or widowers, marry after joining this So., and nominate their wives, the annu. will then be claimable on the completion of five years from the period of their admission, instead of being deferred, as in all other cases, to the expiration of 5 years from the date of nomination. Members are entitled to a second nomination without fee, in case of the death of the first nominee, on proof being given of the health of the person so nominating, and may nominate others than relatives. . . . An annu. ceases to be payable to a widow on her marriage, but in case of her becoming again a widow, she may receive her annu. as before. Other female nominees will cease to be annuitants on their marriage, but will be again placed on the funds should they become widows. . . .

Then we have tables of contingent rev. annu. "Members will pay according to the following rate of prem. for each annu. of about £20, subject to a revision by an actuary every 5 years in accordance with the Act of Parl." [the future Act of Parl.]. Thus, under 20, £1 10s.; under 30, £2 10s.; under 40, £3 10s.; under 50, £4 10s.; under 60, £5 10s.; and on the first joining the So. the following payments are required, viz. entrance fee 10s. 6d. for each annu., and if the nominee be younger than the member, a charge is paid at the time of admission for the difference of age." The "Disparity T." follow.

We next find under "Clergy Widows' House Assu." the following:

The distress which so frequently exists amongst the widows and orphans of the clergy is well known and generally acknowledged. . . . One of the most severe privations to which the widow and orphan family of a clergyman are doomed is the removal from the parsonage, and the consequent necessity entailed upon them to seek, too often without money or friends, a shelter no longer afforded in that house with which was connected their only idea of home. This painful, though unavoidable, calamity this inst. will as far as possible remedy. The plan will be carried out in the following manner: The council of administration will cause to be built, from time to time, houses for the reception of widows and families of deceased clergymen. For these houses a small ann. rent will be required, the payment of which will divest the minds of the afflicted family of the painful feeling of dependence which is inseparable from a residence in any of the more clerical almshouses of the country, and which are only to be obtained by humiliating solicitations.

The rates for this last advantage were distinct from any other payments. A clergyman aged 30 might, by the payment in one sum of £47 3s. 2d., or the ann. prem. of £2 15s. 4d., ins. a residence for his nominee aged 20. There is then this general note—"A clergyman aged 25 availing himself of the general views taken by the promoters of this So. may, by payments of about £12 or £14 p.a., secure as a right for his widow and orphans, in case of death, a comfortable house and £100 p.a. for the remainder of their lives."

We have quoted the details of this scheme at some length, because they had evidently been prepared by some one experienced in the bus.; but whether they were framed in entire good faith does not appear quite so clear. The "Clerical Sec." was the Rev. James Page, M.A.; the Sec. Wyndham Hoste, Esq. The Co. was first regis. as the *Ecclesiastical Annuity So.*; but was changed to the present name during the first year of its existence. The asso. passed out of sight in the following year.

CONSOLIDATED INVESTMENT AND ASSU. Co., founded in 1846, with an authorized cap. of £50,000, in 5000 shares of £10. Power to increase to £500,000. The prosp. said the Co. was estab. for "the purpose of effecting every description of assu. upon lives; for the purchase and sale of rev. interests; and for advancing money upon every kind of available security, to be repaid by way of annuity; and thus to combine on a very extensive scale all the advantages of L. assu. with those of well-established building societies." Further:

Notwithstanding the number of L. offices estab. in this kingdom, and the able manner in which public attention has been drawn to the vast importance of L. assu., its advantages are as yet very little appreciated, and still less understood; it being considered that not one in 60 of those who ought to insure their lives for the benefit of their families have done so.

A primary object with every prudent man is to provide for the necessities of his family or dependents, in the event of his premature death. This consideration has given rise to various plans for effecting the desired object, amongst which building sos. have of late been held in much esteem; but until the estab. of this Co., none had united the bus. of a L. assu. office with the objects of a building society, although, on the slightest reflection, it will be seen that their union must be highly beneficial: as advancing money to be repaid on the terms usually adopted by building sos. will afford a ready and profitable investment for the funds of an assu. office, and relieve the borrowers from all uncertainty as to the time at which their periodical payments are to cease. This idea suggested the formation of the *Consolidated Investment and Assu. Co.*, with a subs. cap. of £50,000, which, with the prem. received for assu. upon lives, will be principally invested in loans, to enable persons to build or purchase residences, or other property, for occupation or investment, to be repaid to the Co. by way of annu. upon the principle of a building so., that the repayment may be continued for a definite period, to be fixed by the borrower; and although this mode of investing the funds will realize a much larger profit than any hitherto adopted by assu. cos., it is not contemplated to reduce the scale of prem. for assu. upon lives below those of other well-estab. offices: but to divide the surplus every 5 years between the members, i.e. the shareholders and holders of pol. for the whole term of life at the ordin. rates of prem., in the following manner.

That manner was in int. to the shareholders at 4 p.c. p.a.; three-fourths of remaining sum to parti. pol.-holders every five years; and the remaining fourth "will be allowed to accumulate to a sum equal to twice the amount of the shareholders' orig. paid-up cap.," with a view to pay off the shareholders, and convert the asso. into a mut. one.

The D. of Sett. of the Co. bears date 12th Sept. 1846, and recites the prov. regis. of the Co. on 27th Feb., 1846, and its intended complete regis. [which took place on 3rd Oct.]. Power to increase or decrease cap. (s. 10). Every member was to pay any debt

to the Co. without requiring partnership accounts to be taken (66). The directors might borrow for the purposes of the Co. any sum up to half the subs. cap. of the Co. (70). Might make re-insurances (84). Then a clause not unusual in D. of Sett. :

That if within any time before the next ann. gen. meeting there be discovered in any account, to be produced by the board of directors at any ann. gen. meeting, as aforesaid, any manifest error to the amount of £50 or upwards, the board of directors shall cause such error to be rectified without delay, and shall cause the account in which such error shall be rectified to be produced at the first gen. meeting which shall be held after such error shall have been discovered (92).

Two special gen. meetings might dissolve the Co. (123).

The progress of the Co. was very slow. At the fourth ann. gen. meeting held in 1850 the income from premis. was only returned as £2841. Postages, directors' fees, and salaries had been considerably reduced.

The Co. continued to carry on bus. down to 1865, when its connexions were trans. to the *Prudential*.

The successive secretaries were Mr. T. G. Western; Mr. E. Thompson; Mr. Noah Collier; and Mr. D. Macgillivray.

CONSOLIDATED LOAN, ANNUITY, AND GENERAL LIFE ASSU. Co.—This project was provisionally regis. in 1845, but proceeded no further. The proposed cap. was £500,000, in shares of £25.

CONSOLIDATED SOCIETY FOR THE BENEFIT OF YOUTH AND AGE.—An annuity so. founded 1st Jan., 1771. It proposed to grant its members, on terms varying with age, shares entitling them to an annuity of £10 in respect of each share—no member to hold more than five shares. The rates of contribution were altogether inadequate to the proposed advantages, and the So. appears to have had a very brief career.

CONSOLIDATION OF ACTIONS [CONSOLIDATION RULE].—If two or more actions be brought by the same plaintiff, at the same time, against the same defendant, for causes of action which might have been joined in the same action, the Court, or Judge at Chambers, if they deem the proceedings oppressive, will, in general, compel the plaintiff, by rule or order, to join (*i.e.* consolidate) them, and to pay the costs of the application, which should be made after appearance, and before declaration. Every subs. to a pol. made with private underwriters, being a separate contract, is the ground of a separate action; and consequently, although the facts be the same, the cause of action and the ground of defence identical, yet the number of actions brought upon the same pol. is necessarily the number of subs. which it bears—not one of them differing from another except in amount. If the underwriter deny his liability, then writs may be issued against all who underwrote; but after appearance application may be made on the part of the defendants in those several actions for a Judge's order to stay all except one, the plaintiff consenting, and the other defendants agreeing to be bound by the result of such one action. Such an order is called a "Consolidation Rule."—*Arnould*, etc.

CONSOLS.—Consols represent the largest portion of the funded debt of the British Empire. The name is simply the short title of the *Three per cent. Consolidated Annuities*. On each £100 Consols the Gov. guarantees to pay an annuity of 3 p.c. p.a. for ever, and the nation is security for it. The dividends on Consols are paid half-yearly in Jan. and July by the Bank of England on behalf of the Gov.

Consols, as now understood, had their origin in 1751, when an Act of Parl. was passed consolidating several separate stocks bearing an ann. rate of 3 p.c. int. into one general stock. At the time when the consolidation took place, the aggregate amount of the stocks blended together amounted to £9,137,821; but by the funding of additional loans and parts of loans in this stock, it amounted in 1817 to the immense sum of £816,311,940—the highest amount ever reached.

The Act referred to is the 25 Geo. II. c. 27 (1752)—*An Act for Converting the several Annu. therein mentioned into several joint-stocks of Annuities, Transferable at the Bank of England, to be charged on the Sinking Fund; and also for Consolidating several other Annu. therein mentioned into Several joint-stocks of Annu., Transferable at the South Sea House*. The only clause to which we need draw attention is that relating to the power of redemption, not from any likelihood of its coming into operation, but rather because its existence is generally ignored.

XXIV. Provided also, and it is hereby enacted by the authority aforesaid, That at any time, upon one year's notice, to be printed in the *Lond. Gazette*, and affixed upon the Royal Exchange in Lond., and upon repayment by Parl., according to such notice, of the said several and respective sums, or any part thereof, for which the said several and respective annu. or any of them shall be payable, by payments of not less than £500,000 at one time, in such manner as shall be directed by any future Act or Acts of Parl. in that behalf; and also upon full payment of all arrearages of the same annu.; then, and not till then, so much of the said several and respective annu. as shall be attending on the said principal sums so paid off shall cease, determine, and be understood to be redeemed; and that any vote or resolution of the House of Commons, signed by the Speaker in writing, to be inserted in the said *Lond. Gazette*, and affixed on the Royal Exchange in Lond. as aforesaid, shall be deemed and adjudged to be sufficient notice within the words and meaning of this Act.

Under the operations of the Sinking Fund, instituted by Mr. Pitt, on the advice of Dr. Price, and under the authority of Parl. (26 Geo. III. c. 31), in 1786, down to its virtual extinction in 1832, various amounts of the funded debt were redeemed, but whether under the operation of this clause does not appear.

We propose to present to our readers a more complete T. on the subject of Consols than

has been previously compiled, the considerations involved being of great practical importance to ins. offices.

The following T. will show the average price of National Securities from 1731 down to 1751, when Consols were created, and from that date down to 1788; the highest, lowest, and mean price of Consols from 1789 down to 1870; the rate of int. realized upon such investments during the entire period; the influence of peace and war; the ann. and decennial range of fluctuation in price; and the amount of the Funded Debt during the larger portion of the entire period. The dates of the highest and lowest prices will furnish some instructive points of obs. The part which the month of January plays is very remarkable :

Peace or War.	Year.	Highest Price.	Lowest Price.	Fluctuation.	Annual Average Price.	Decennial Average Price.	Average Rate of Int. yielded.	Amount of Funded Debt.
					£ s. d.	£ s. d.	£ s. d.	(1727)
PEACE.	1731	96 0 0	99 6 0	3 2 6	£ 52,000,000
	1732	...	...	...	98 0 0		3 1 2
	1733	...	...	...	100 0 0		3 0 0
	1734	...	...	...	92 0 0		3 5 2
	1735	...	...	...	95 0 0		3 3 1
	1736	...	...	...	102 0 0		3 13 9
	1737	...	...	...	106 0 0		2 16 7
	1738	...	...	...	104 0 0		2 17 8
	1739	...	...	...	101 0 0		2 19 4
	1740	...	...	...	99 0 0		3 0 7
WAR.	1741	95 0 0	92 16 0	3 0 1	46,500,000
	1742	...	...	...	100 0 0		3 0 0
	1743	...	...	...	101 0 0		2 19 4
	1744	...	...	...	94 0 0		3 3 10
	1745	...	...	...	89 0 0		3 7 4
	1746	...	...	...	82 0 0		3 13 2
	1747	...	...	...	83 0 0		3 12 3
	1748	...	...	...	86 0 0		3 9 9
	1749	...	...	...	98 0 0		3 1 2
	1750	...	...	...	100 0 0		3 0 0
PEACE.	1751	100 0 0	94 6 0	3 0 0	78,000,000
	1752	...	...	...	104 0 0		2 17 8
	1753	...	...	...	104 0 0		2 17 8
	1754	...	...	...	103 0 0		2 18 3
	1755	...	...	...	96 0 0		3 2 6
	1756	...	...	...	89 0 0		3 7 4
	1757	...	...	...	90 0 0		3 6 8
	1758	...	...	...	92 0 0		3 5 2
	1759	...	...	...	83 0 0		3 12 3
	1760	...	...	...	82 0 0		3 13 2
WAR.	1761	79 0 0	85 10 0	3 15 11	139,000,000
	1762	...	...	...	75 0 0		4 0 0
	1763	...	...	...	89 0 0		3 7 4
	1764	...	...	...	84 0 0		3 11 5
	1765	...	...	...	88 0 0		3 8 2
	1766	...	...	...	89 0 0		3 7 4
	1767	...	...	...	89 0 0		3 7 4
	1768	...	...	...	91 0 0		3 5 11
	1769	...	...	...	88 0 0		3 8 2
	1770	...	...	...	83 0 0		3 12 3
PEACE.	1771	86 0 0	78 12 0	3 9 9	239,693,900
	1772	...	...	...	88 0 0		3 8 2
	1773	...	...	...	87 0 0		3 8 11
	1774	...	...	...	88 0 0		3 8 2
	1775	...	...	...	89 0 0		3 7 4
	1776	...	...	...	84 0 0		3 11 5
	1777	...	...	...	78 0 0		3 16 11
	1778	...	...	...	64 0 0		4 13 8
	1779	...	...	...	61 0 0		4 18 4
	1780	...	...	...	61 0 0		4 18 4
WAR.	1781	58 0 0	67 4 3	5 3 5	233,044,965
	1782	...	...	...	58 0 0		5 3 5
	1783	...	...	...	64 0 0		4 13 8
	1784	...	...	...	57 0 0		5 5 3
	1785	...	...	...	60 0 0		5 0 0
	1786	...	...	...	74 0 0		4 1 0
	1787	...	...	...	74 0 0		4 1 0
	1788	...	...	...	75 0 0		4 0 0
	1789	15 Sep. 81½	29 Jan. 71½	9½	76 8 9		3 18 6	
	1790	23 Apr. 80½	10 May 70½	10½	75 13 9	67 1 3	3 19 3	301,861,306
PEACE.	1791	6 Sep. 89½	28 Mar. 75½	14	85 15 0		3 12 6	
	1792	16 Mar. 97½	3 Dec. 72½	24½	84 16 3		3 10 9	
	1793	9 Apr. 81	12 Feb. 70½	10½	75 15 0		3 19 2	
	1794	2 Jan. 72½	16 Dec. 62½	9½	67 11 3		4 8 10	
	1795	16 Dec. 70½	23 Jan. 61	9½	65 15 0		4 11 3	
	1796	12 Jan. 70½	30 Dec. 53½	17½	61 18 9		4 16 11	
	1797	17 Jan. 56½	1 June 47½	9	52 0 0		5 15 4	
	1798	7 Nov. 58	23 Aug. 47½	10½	52 12 6		5 14 0	
	1799	3 Sep. 69	29 Jan. 52½	16½	60 16 3		4 18 9	
	1800	29 Sep. 67½	29 Jan. 60	17½	63 12 6		4 14 3	
WAR.	1801	14 Oct. 70	26 Jan. 54½	15½	62 2 6		4 16 7	423,367,547

Peace or War.	Year.	Highest Price.	Lowest Price.	Fluctuation.	Annual Average Price.	Decennial Average Price.	Average Rate of Int. yielded.	Amount of Funded Debt.
					£ s. d.	£ s. d.	£ s. d.	
PEACE.	1802	6 Apr. 79	22 Jan. 66	13	72 10 0			
	1803	6 May 73	28 July 50	22	61 12 6			
	1804	6 Dec. 58	6 Jan. 53	5	56 6 3			
	1805	14 Jan. 62	8 Apr. 57	5	59 10 0			545,803,318
	1806	4 Aug. 64	1 Dec. 58	6	61 11 3			
	1807	17 Nov. 64	23 Jan. 57	6	61 0 0			
	1808	17 June 69	7 Jan. 62	6	65 17 6			
WAR.	1809	10 Nov. 70	19 Jan. 63	7	66 17 6			
	1810	22 May 71	28 Sep. 63	7	67 2 6	63 9 0		614,789,091
	1811	4 Jan. 66	16 July 61	5	64 5 0			
	1812	7 Jan. 63	10 July 55	7	59 1 3			
	1813	24 Dec. 67	14 July 54	13	61 0 0			
	1814	9 Apr. 72	31 Mar. 61	11	67 0 0			
	1815	21 Jan. 65	11 June 53	11	59 16 3			752,857,236
	1816	30 May 64	10 Jan. 59	5	62 1 3			
	1817	6 Dec. 84	15 Jan. 62	22	73 2 6			816,311,940
	1818	15 Apr. 82	29 Aug. 73	9	77 10 0			
	1819	23 Jan. 79	26 May 64	14	71 18 9			
	1820	2 June 70	28 Sep. 65	4	67 18 9	66 7 4		794,980,480
	1821	22 Oct. 78	17 Jan. 68	10	73 15 0			
	1822	26 Oct. 83	21 Jan. 75	7	79 3 9			
	1823	21 Dec. 85	1 Mar. 72	13	78 17 6			
	1824	28 Apr. 96	7 Jan. 84	12	90 16 3			
	1825	5 Jan. 94	20 Dec. 75	19	84 12 6			781,123,222
	1826	18 Nov. 84	14 Feb. 73	10	79 3 9			
PEACE.	1827	1 Aug. 89	19 Jan. 76	12	83 2 6			
	1828	12 Sep. 88	6 Jan. 80	7	84 12 6			
	1829	29 Dec. 94	19 Jan. 85	8	89 18 9			
	1830	1 Jan. 94	8 Nov. 77	16	85 17 6	83 0 0		771,251,932
	1831	31 May 84	9 Mar. 74	9	79 16 3			
	1832	1 June 85	21 Jan. 81	4	83 13 9			
	1833	7 June 91	17 Jan. 84	7	87 15 0			
	1834	13 May 93	17 Jan. 84	9	90 5 0			
	1835	24 Apr. 92	26 Aug. 89	3	91 1 3			758,549,860
	1836	5 Jan. 92	22 Dec. 86	5	89 8 9			
	1837	2 Dec. 93	6 Jan. 87	6	90 17 6			
	1838	31 May 95	6 Jan. 90	4	92 18 9			
	1839	31 May 93	3 Sep. 89	4	91 11 3			
WAR.	1840	3 June 93	8 Oct. 85	4	89 8 9	88 13 7		766,548,680
	1841	15 Apr. 90	11 Oct. 87	3	88 17 6			
	1842	9 Dec. 95	13 Jan. 88	6	91 16 3			
	1843	10 Mar. 97	9 June 92	5	94 12 6			
	1844	4 Dec. 101	12 Jan. 96	4	98 17 6			
	1845	4 Jan. 100	27 Nov. 91	8	96 5 0			769,193,644
	1846	9 Feb. 97	16 Dec. 93	4	95 10 0			
PEACE.	1847	2 Jan. 94	19 Oct. 78	15	86 7 6			
	1848	18 Feb. 90	16 Apr. 80	10	85 0 0			
	1849	14 Dec. 97	12 May 90	7	94 5 0			
	1850	12 Dec. 98	17 May 95	3	96 15 0	92 16 6		773,168,317
	1851	20 Nov. 99	15 Sep. 95	3	97 8 9			
	1852	11 Dec. 101	6 Apr. 95	5	98 13 9			
	1853	26 Apr. 101	Oct. 91	9	95 7 6			
	1854	12 Sep. 95	30 Mar. 85	10	90 10 0			
WAR.	1855	Mar. 93	Oct. 86	7	90 0 0			752,064,119
	1856	3 July 96	14 Jan. 85	10	90 17 6			
	1857	Jan. 94	Oct. 87	6	90 7 6			
	1858	12 Oct. 98	July 95	3	91 7 6			
	1859	9 Dec. 97	28 Apr. 88	9	92 16 3			
	1860	9 May 95	Oct. 92	3	94 1 3	93 3 0		785,962,000
	1861	Sep. 94	25 June 89	5	91 13 9			
	1862	22 Mar. 94	11 June 91	1	92 18 9			
PEACE.	1863	5 May 94	Dec. 90	4	92 0 0			
	1864	13 Apr. 92	8 Sept. 87	4	89 11 3			
	1865	1 June 91	Dec. 80	4	89 2 6			775,768,295
	1866	Dec. 90	11 May 84	6	87 5 0			
WAR.	1867	1 June 96	8 Apr. 89	6	94 0 0			
	1868	29 May 96	21 Dec. 92	4	94 1 3			
	1869	1 June 94		2	93 0 0			
PEACE.	1870	94		6	91 10 0	91 10 3		

[The prices in the above T. from 1731 down to 1789 are as given in an unpublished work by the late Mr. Griffith Davies (who we assume had satisfied himself that he was quoting prices of 3 p.c. stock or annu.) ; those from 1789 to 1848 are taken mainly from Van Sommer's Tables. The later figures (since 1848) from a Parl. return pub. in June, 1870, the plan of which, however, is so clumsy that whole years are omitted. This will apply to the items where date of month is omitted—these items have been obtained from other sources. We have checked these returns with other authorities, where practicable, and find some slight disagreement ; but on the whole the details will be found accurate. For the general arrangement we are responsible.]

The fluctuations shown are very remarkable. They are not entirely dependent upon Peace or War ; still less are they dependent upon the amount of the debt, funded and

unfunded, itself. The lowest price ever touched by Consols was in 1798, when, on 23rd Aug., they were quoted at $47\frac{1}{2}$; in the previous year they had fallen to $47\frac{1}{2}$; and the average price of 1797 was $\pounds 52$; being five-eighths less than the average of 1798. Those L. offices which were either bold enough or fortunate enough to invest their funds in Consols at this period, and could afford to hold, realized a very considerable profit. It is well known that the *Globe*, and other offices having large proprietary cap., invested largely in Consols early in the present century, and reaped a handsome reward.

The highest price quoted in the preceding T. occurred in 1738, viz. $\pounds 106$. In eight different years during the last century they were on an average of the year above par. But on the other hand they fell in 1784 to $\pounds 57$ —a difference of $\pounds 49$ in 46 years; but the fluctuation was not so gradual as these last-named figures might suggest. We can, however, only see one phase of the fluctuation in Consols, until we reach the close of the last century. The arrangement of the T. we commence at 1789 enables us to observe not only the comparative fluctuations of whole years against whole years, but of each year within itself. Thus, in 1792 the highest price reached was $97\frac{1}{2}$; the lowest, $72\frac{1}{2}$ —difference 24%, or more than 25 p.c. in a year! In 1817 the fluctuations of the year were $22\frac{1}{2}$; in 1825 they were $19\frac{1}{2}$! On many other occasions the fluctuations have been violent; as for instance in 1847—a period of profound peace. The highest price reached during the present century was in 1852, 11th Dec., $101\frac{1}{2}$; the lowest in 1803, 28th July, $50\frac{1}{2}$ —so that the difference between highest and lowest is more than c. p. c.!

The question naturally arises, How far are Consols adapted to the investment of the funds of a L. office? The events of the last few years have drawn especial attention to the point; and yet the consideration of it is not new, as will presently appear. We propose to review some of the best authorities upon the question; and also to notice some points of recorded practice which have been overlooked in a remarkable manner. For the purpose of looking at all sides of the subject, we propose to notice the popular view of the "charming simplicity of the three per cents." To this end we cannot do better than quote a leader from the *Times*:

There is nothing in the world so negotiable at all times and seasons, and under all circumstances, as the Consols. House and land, stock and share, mortgage and bill—everything has its ups and downs; but that which changes least is the three per cents. The commercial spirit loves their modest, faithful, constant character, their equal mind, their moderation in prosperity, their firmness in adversity, their help in time of need, their open, honest countenance, like the good wine that needs no bush. What occasion to advertise the praises of the three per cents., or explain their hidden virtue? Three golden sovereigns on the faith of the British Empire speak for themselves; they require no introduction, no letters of credit, no testimonials, no certificate of analysis by eminent professors, no special adaptation to your particular case, no logic, no rhetoric, no puff, no sermon—nothing whatever but the great fact of those three golden sovereigns, or notes infallibly conveying them.

This is the poetry of the subject. Now let us look at the practice.

In the hist. of the *Equitable* we find constant discussions as to the difficulties arising from the fluctuations in Gov. securities, and how they were to be remedied. Within a year after one of the valuations for surplus (that of 1829), Consols fell about 20, and but for the large reserves in hand, the So. would have been in fact insolvent in an actuarial point of view. Mr. Morgan, the Actuary, suggested that, with a view of avoiding such difficulties, some "mean price" should be used for estimating their Gov. stock investments. If we remember rightly, on more recent occasions this So. has suffered considerably from investment in Consols.

Mr. William Morgan, in the preface to the 5th ed. of Dr. Price's *Reversionary Payments* (1792), speaking of the assets of certain tontine asso., says:

When the expenses of management are also deducted, and allowance is made for the loss which is likely to be sustained by investing the subs. in the public funds, *where the improvement of money is always uncertain*, but particularly so at the very high price which they now bear, it is more than prob. that the shares will fall greatly below the sums which I have stated, and that the surviving members will have the satisfaction to find at the end of seven years that they have barely received their principal, after having endangered the loss of the greatest part of it by dying in the mean time.

In the prosp. of the *Australasian, Colonial, and General L.*, founded 1839, and of which Mr. E. Ryley was Act., there occurs the following passage:

If the directors were not deeply impressed with the absolute security of their proposed modes of investment [mortgages of the first class in Australia], this So. would not have existed; but if these modes be safe (and it is impossible to go beyond the point of perfect safety), then they are really vastly superior to the English funds, as well on account of their much higher rate of int., as because the amount of the principal is not subject to similar variation; whereas many English assurers have seen within their own time the public funds in which they knew their contributions to have been chiefly invested (taking the 3 p.c. Consols as the example of the whole) fall from 97 in 1792 to $47\frac{1}{2}$ in 1797; rise and fall between $47\frac{1}{2}$ in 1798, and $78\frac{1}{2}$ in 1802; again fall to $50\frac{1}{2}$ in 1803, and after enormous intermediate fluctuations, regain in 1824 their former price of 97. In 25 years, from 1805, there were five years in which the fluctuation in the price of stock was from 14 to $22\frac{1}{2}$ p.c., and eight in which it was from 9 to 13 p.c.; and in 37 years, to 1835, the average ann. fluctuation was about 10 p.c. on the price of stock, and 14 p.c. on the principal invested. It is therefore submitted that the slight commercial risk attending the Australasian investments referred to is not nearly equal to the political risk attached to the public funds (liable also to be powerfully affected by the vicissitudes of trade), *more especially at their present very high prices.*

In 1848 Mr. James Van Sommer, Sec. to the Managers of the Stock Exchange, pub. *Tables Exhibiting the Various Fluctuations in 3 p.c. Consols in every Month during each Year from 1789 to 1847 inclusive*, etc. From these we have drawn some of the materials of the preceding T. Those who desire to understand fully the risk attending dealings in Consols should carefully study these T.

On the declaration of war with Russia in 1853, the effect on Consols was seen in a marked manner. In April of that year they stood at 101—the highest price they had reached for a century. In October they were down to 90½—a range of nearly 11 p.c. But in the following year the fluctuation was more violent, though not so wide in its range. In Feb. Consols stood at 92½; in March they were 85½—a fall of £7 15s. in the course of a month.

Mr. Samuel Brown, in his paper *On the Investment of the Funds of Assu. Cos.*, read before the Inst. of Act. in 1858, and printed in vol. vii. of *Assu. Mag.* p. 241, says under “Public Funds”:

If the sole object of the investors was to obtain a regular payment of int., no doubt the funds would rank in estimation higher than any other security, . . . but the certainty of the income is dearly purchased at the price of the uncertainty of the return of their cap. For an assu. co. this is a serious objection. The premis. are cap. paid in, to be returned to the assu. in certain definite and guaranteed sums; and the investments sought for them should be such as make *not only the int. but the cap. secure of being obtained in full whenever required.* The same remark applies to the int. upon int. which is to be invested in a similar manner year by year: for by the very nature of a pol. of assu., compound int. is equally guaranteed. Now the Gov. loans can only be repaid when at or above par. Some are wholly irredeemable; others irredeemable for certain fixed periods. In any case it is to be presumed the Gov. will only exercise their power to redeem when they can do so with advantage—that is, when the rate of int. is so low that they can reckon upon borrowing at a lower rate of int. than 3 p.c. In that case the purchaser at the average price of the funds would realize a considerable profit; but in the mean time what position would he hold? If he wishes to withdraw the cap. invested, the price may be above or below what he gave for the stock. *So many events cause fluctuations in the funds, that he never knows what amount of his cap. he may be able to recover when he needs it.* Wars and rumours of wars, commercial distress, the failure of a harvest, the politics of countries over which we have no control, or the atrocious designs of men leagued against good order and the peace of society, may all or any of them be causes at work to affect the value of his investment. If he buys at a price taken on the average of many years of war and peace, he may perchance, when he sells, realize somewhat near the average again. But the fluctuations in the 3 per cents. have been from 47½ to 107. . . . Who can tell what events may unexpectedly occur to diminish the value of the investment just when it is required to meet an engagement? The facility of purchase and sale, the cheap cost of trans., the simplicity of title, and the high guar. for the int., may give a peculiar credit to an investment in the funds, in the eyes of those who require those qualities: but the low rate of int., and the uncertainty of the return of the cap. when wanted, *make them exceedingly unsuitable for the operations of an assu. co., whose pledge is given for a fixed repayment of cap., and whose profits depend upon obtaining more than the rate of int. assumed in its T. A wise board, or official man, or act., would keep no more in them than is absolutely necessary for immediate purposes, would only buy below the average, and take every fair opportunity of trans. the value to other securities whenever the price ranged considerably above the average.*

Mr. Charles Jellicoe says, in a footnote to his paper on *Actuarial Estimates*, 1859 (*Assu. Mag.*, vol. viii. p. 313), regarding Consols:

It is very much the practice to assume that Consols will, at any future time, most probably realize 85 p.c.; and this assumption is grounded on the fact that that has been the average price for about half a century together. But I think the assumption is a fair one, considering that 3½ p.c. is about the true rate of int. for a security perfect in every respect, *with the exception of the circumstance that the amount recoverable is always uncertain.* An investment in Consols has, with this exception, all the characteristics of a perfect security. It is as safe as anything can well be; int. is paid with entire punctuality, and the cap. can be lent or withdrawn, at the will of the lender, almost at a moment's notice. The exception we have spoken of is the only defect, *but it is a serious one*, and demands at least half p.c. more in the rate of int. It is probable that Consols would always be nearer 100 p.c. if it were not for this peculiarity, that no more than 3 p.c. p.a. would usually be obtained from an investment in them. But if 85 p.c. be a fair rate for the purposes we are speaking of, there seems no reason why the 3 p.c. stock of an assu. co. should not be taken in its valuations at that rate, rather than at any of the rates arising from such other principles of valuation as those enumerated by Mr. Farren; and we may observe that if such practice be acted upon, *it follows that every purchase of such stock at a higher rate than 85 p.c. must involve a loss.*

In an able paper by Mr. A. H. Bailey, read before the Inst. of Act. in 1862, *On the Principles on which the Funds of Life Assu. Sos. should be invested* [*Assu. Mag.* x. p. 142], we find the following obs.:

It may seem a bold assertion, but, nevertheless, I believe it to be true, *that the English Funds are altogether unsuited for L. assu. investments.* For income, they offer prob. the best security the world has yet seen; but with us that is a secondary consideration; the cap., *the security of which is our first object, is subject to very inconvenient fluctuations in value.* But it will be urged that on account of their ready convertibility, some portion of the assets should always be invested in the funds. This advantage I believe to be more apparent than real. In the practical working of L. offices it will commonly be found that, in an easy condition of the money market, the funded property has a tendency to increase, although the purchases must, of course, then be made at prices above the average—because, money being plentiful, eligible securities are then scarce. In periods of pressure, on the other hand, when favourable opportunities for investment are abundant, *the funded property is practically inconvertible, from the determination not to effect sales at a loss, except in cases of absolute necessity.* I believe that the assu. cos. are now much less extensive fund-holders than formerly. But there is still a prevalent idea that one-half the assets should always be invested in the funds. Upon this rule the wealthiest of the offices still acts; and the idea has been so fostered, by the large profits realized by some of the older cos. from their purchases at the beginning of this century, *that it seems necessary to point out that the risk is now in the opposite direction, and that perfect security is now very far from being one of the advantages of the funds.*

In 1870 Mr. James R. MacFayden, of the *Legal and General*, pub. a pamph. : *The Principles affecting the Solvency of a Life Assu. Co., and the best means of protecting the public against their violation*, wherein he offers the following obs. regarding Consols:

The rate of int. realized on Consols is little more than 3 p.c. An ins. co. can readily, and without any danger to the principal, secure 4 p.c. Why compel the assurer to pay 1 p.c. as the price of a security that can be obtained without any such charge being made? *He will very soon find, through the index of his bonus, that he is paying too dearly for his whistle.*

That Consols are readily convertible is no argument in their favour, but rather against them,—as to invest the mass of a L. co.'s funds in a readily convertible security is to needlessly sacrifice a legitimate advantage that assu. cos. possess in the market, and which represents a safe increase in the int. obtained. A L. office, though of course requiring a working bal., can afford to invest the bulk of its funds in securities that, though safe, are not rapidly convertible, as a “run” upon it is impossible. Even epidemics affect it but little. The cholera seasons which have occasionally swept over us have scarcely shaken the mort. experienced by the cos.

Again, Consols are subject to fluctuations—not that there is in this any danger, if the margin retained be large enough; but as loans advanced on heritable securities, which form the bulk of most L. offices' funds, are not fluctuating in value, they are, if this be an evil, superior as an investment. It must be remembered also, that where the Consols are bought outright, as this method supposes, there is no margin; but the market price at the time is the minimum one that must be obtained, or loss—small, no doubt, but possible—will result. As, too, this method, like all the others, requires the appointment of an official staff to see that the proper sum is invested and maintained, it possesses in this respect no special advantage over the others.

In 1870 the range in the price of Consols reached 5¾ p.c. During this year there was pub. by the authority of Parl. : *An Account showing the Highest and Lowest and the Mean Price of 3 p.c. Consols during each Year commencing the 6th April, 1822, and terminating the 5th day of April, 1870.* We have used this return (prepared by Messrs. Mullens, Marshall, & Co., Gov. brokers) in the compilation of our T. It shows that Consols were above par in the financial years 1844-5, 1845-6, 1852-3, and 1853-4, and in the year 1852-3 the mean price of the year was above par. On the other hand, the price fell below 75 in 1822-3, 1823-4, 1825-6, and 1830-1. The highest price in the 48 years was £101 12s. 6d., on the 11th of December, 1852; and the lowest was £72, on the 1st of March, 1823. In the ten years ending the 5th of April, 1870, the highest price was £96 7s. 6d., on the 1st of June, 1867; and the lowest was £84, on the 11th of May, 1866, at the time of the last commercial panic.

In this year also the *Law Fire Co.* wrote off a loss of £3952 from investments in Consols.

In a very impartially written art. in the *Ins. Agent* for Dec., 1872, *Consols as Investments for Life Offices*, occurs the following:

Most L. offices were formerly in the habit of keeping a large proportion of their reserves in the Brit. Gov. Funds. This custom has now, to a great extent, been abandoned. As there have been and are undoubtedly sound reasons for both courses, and as it has lately been abundantly declared in various quarters that Consols are the only proper investments for L. ins. cos., the question is well worth dispassionate discussion. In the first place, it is claimed for Consols that they afford unexceptionable security—superior to that afforded by any other form of investment. But it is quite clear that this position is untenable. By security can only be meant that the money expended shall be realizable, without loss, whenever it is wanted. Now this cannot be said of Consols. There is nothing more fluctuating than their value; and it is a well-known fact that a large and old-established L. office, not so long ago, had to write off from its assets a very heavy amount of loss arising from the funds, they having been purchased at prices much in excess of the ruling rates of late years.

The *Equitable* is the office here referred to. It is well that the loss fell upon an office so well able to bear it. The writer then reviews the prices of Consols from the year 1801 down to 1853, and proceeds:

By these figures will be seen how much both gain and loss (the elements of speculation) must have entered into dealings in Consols. Who will venture to say that these fluctuations will not occur again? *In the lifetime of men now living, the variation has been from 56 to par.* But we shall no doubt be told by the advocates of the Consols system that the imperial credit is never likely to be completely broken; and so it is next to impossible that there can be total loss. To which we make a twofold answer. In the first place, the same remark may fairly be made of Indian, Russian, American, and other stocks, all of which pay much more than 3 p.c.; and in the second place, we would point out that even such depreciations as the foregoing would be quite sufficiently serious to affect the position of a L. office in time. . . . Investing in Consols would not have saved the *European* or the *Albert*, or the associated cos. . . . Nor can we at present see how investment in Consols could save any existing co. if its expenditure were excessive, its lives of a bad class, or its mort. exceptionally disastrous. The pol. which matured early would have to be paid, whether the investments were in Consols or Indian Railway stock; and the others would only be paid if the funds lasted out.

Mr. Sprague, in his able criticism on the *Positive Life Office* in 1872, spoke as follows regarding investment of life ins. funds in Consols:

It is quite true that if the funds are all invested in Consols, they cannot be wasted by injudicious investments in personal security, loans, and other securities requiring much caution, inquiry, and judgment; but the success of the great majority of cos. demonstrates that it is quite possible to invest the funds on mortgages and other securities producing a rate of int. from 4 to 4½ p.c., with no appreciable risk of losing any portion of the cap. By such investments the pol.-holders benefit as much, if not more, than the shareholders, and the proof of this is seen in the satisfactory bonuses that have been paid for a long series of years by prudently conducted offices. When the liabilities of the co. are valued, as is commonly the case, at 3 p.c. int., the excess of the int. received on the funds above that rate forms an important additional security to the assured, which they almost entirely lose by the investment of their funds in Consols. *It appears to me, therefore, that the compulsory investment in Consols, far from conducing to the security of the assured, tends to diminish it.* It would have this tendency to a dangerous extent in the event of the price of Consols falling for a series of years below the average; for, in that case, the claims being all payable in sterling money, a loss would be incurred on every sale of Consols made for the purpose of paying claims, and the stability of the fund might be seriously endangered.

A writer in the *Stock Exchange Review* [Dec. 1872], purporting to write in support of investments in Consols, says, “It is a serious consideration what the position of an office would be, when, on bringing its securities to market, it could only obtain 60 or 70 p.c. of their estimated value in cash!” This is the point which most of the writers we have quoted urge as *against investment in Consols.*

Reviewing the entire subject, we arrive at this conclusion : Consols are perpetual annu. based upon the credit of the national finance : and being so based are susceptible of all the fluctuations to which natural finance is incident. Many of these causes of fluctuation we have already noticed. They are "fine weather" securities, in the sense of being buoyant when the nation is prosperous (an unfavourable time to purchase !) : extremely fluctuating when adversity threatens (their speculative phase !) ; but never really bad while national life and hope remain (their redeeming virtue !). It is because they contain these several elements in such a marked degree, that they have become the favoured medium of speculation in the Stock Exchange ; and continue to enjoy, in a greater or less degree, the confidence of gambling capitalists.

CONSOLS INSURANCE.—The first outline of the scheme which is now known as that of "Consols Ins.," and to which such marked attention has been drawn during the last few years, is contained in a pamph. without date, bearing, as a guarantee of its honesty of purpose, the name of "William Farr" at the foot of the following title-page. *A System of Life Ins. which may be carried out under the control of the Gov., and would (1) Be equitable in its operations ; (2) Afford the best security, and be in the best condition to fulfil its future engagements ; (3) Be well adapted to the wants of the people, as it would afford all the advantages of an ins. office, and some of those of a bank ; and (4) Operate at less risk, less expense, and lower premiums than small offices. (5) It might be made a considerable source of national revenue.* The word "confidential" is printed at the top of the title-page ; but all occasion for confidence has long since passed away.

We do not know precisely when the idea of the system of ins. embodied herein first entered the mind of its learned originator. But it was prob. either during the preparation of the *English Life T.* (No. 1), which appeared in 5th Rep. of Reg.-Gen. pub. 1843 ; or of that most interesting paper on the *Finance of Life Ins.* which appeared in the 12th R. of Reg.-Gen. pub. 1853. [This paper was referred to in 8th R. of Reg.-Gen. pub. 1849, p. 291.] That the subject had engaged the serious attention of some of the leading officials at Somerset House previously to 1853 is clear from the following passage in this 12th Report :

The subject of L. ins. is now occupying public attention, and it appears to be well worthy of consideration whether increased facilities should not be afforded by Her Majesty's Gov. to the poorer classes with a view to their adopting the system of L. ins., either in connexion with savings' banks, or by the adoption of other plans which may be deemed more desirable. I shall be glad if the facts recorded under the Regis. Act tend to the estab. of a life T. trustworthy and to be depended upon, and assistance be thereby given to the desirable object of introducing L. ins. amongst classes who at present have not at hand the ready means of availing themselves of its advantages. I invite your Lordships' attention to the letter and paper written by Mr. Farr in the appendix. . . .

This purports to be the utterance of the Reg.-Gen. himself and not of Dr. Farr ; but the latter was the moving spirit in the matter.

We shall not stay to inquire more particularly into the period of the completion of Dr. Farr's plan. It was completed between 1853 and 1858, and in due course submitted to the Gov. The Gov. did not adopt it. We shall presently have occasion to give Dr. Farr's own version of the transaction. *As a matter of fact, Dr. Farr's scheme did not contain one single reference to Consols, or a Consols basis for L. ins. ; and yet it was destined to form the basis upon which the scheme of Consols ins. was to be built up.* How this came about we shall next proceed to show. What Dr. Farr's proposed plan of ins. really was will be explained under DEPOSIT INS., and GOV. INS.

The first mention of "Consols Ins.," of which we have any knowledge occurred in the *Post Mag.* of 12th June, 1858. There then appeared an advertisement, headed "Consols Life Policies—Explanation of their Advantages." The adv. purported to be signed by "Thomas H. Baylis, Man. Director," he being then in fact Man. Director of the *British, Foreign, and Colonial*. The adv. says :

The Consols L. pol. issued by the *British, Foreign, and Colonial Assu. Asso.* present two very distinct advantages to assurers. They consist of—1. The known security of Consols for the payment of pol., instead of the ever fluctuating uncertain responsibility of a joint-stock or mut. co. 2. The absolute right of ceasing an ins. at any time, and of receiving its full value in cash, which year by year is invested in Consols, and remains so, and known to be so in every instance by tests periodically applied by persons to be appointed by the Board of Trade, or other independent authority, according to the valuation T. pub. in the 12th Rep. of Reg.-Gen.

Consols L. pol. are effected upon the actual security of Consols. This is an invariable and unerring condition. They represent Consols. The full amount of assurers' net prem. are invested in Consols directly they are paid, and all claims in respect of pol. are paid in Consols. . . . All the net prem. are invested in Consols, and constitute the *L. assu. fund*. . . . Failure, if it could possibly occur, or amalg. of the asso. with another co., would in no way affect the fund ; nor could either of such circumstances prejudice the complete security of assurers to the extent of one farthing.

The *British, Foreign, and Colonial Assu. Asso.* undertakes a twofold duty towards each of its Consols life pol.-holders. It is at one and the same an assu. office and a savings bank. . . .

It will be seen that this system for conducting the bus. of L. assu. is entirely free from doubt and uncertainty. The security is altogether unexampled. . . . In placing so complete a security at the service of assurers, the directors have not deemed it necessary to refer particularly to the financial strength and resources of the asso. ; but in point of fact every assurer in effecting a Consols life pol. with it has, in add. to the security of Consols, the security of the office, which consists of a subs. cap. of nearly £50,000, by an extensive and wealthy body of shareholders.

Those who were familiar with Dr. Farr's ins. scheme, already referred to, could not fail to discover sufficient in the foregoing outline to fix its identity, even if that identity

had not been, as it was, fairly acknowledged. The Consols investment for the fund is the only fresh element in it.

Dr. Farr's connexion with the project in its new form appears to have been brought about as follows:—On the 25th Nov., 1858, Mr. Baylis, the Man. Director of the *British, Foreign, and Colonial*, addressed the following letter to him:

The Directors of this Asso. desire to submit for your consideration a plan for effecting Consols L. pol., as described in the accompanying pamph., with a view to obtaining your opinion as to its soundness, the accuracy of the T., the new advantages presented to pol. and shareholders, together with such general remarks as may occur to you as bearing on the subject.

In thus making application for your opinion, the Directors think it proper to state, that they do so because the T. they have decided on using, in connexion with Consols L. pol., are based upon those pub. in the appendix to the 12th Ann. Rep. of the Reg.-Gen., under your immediate superintendence, and fully carry out the plan of deposit and audit therein described, as being so desirable and necessary for the protection of pol.-holders.

Dr. Farr's reply bears date 1st Dec. following, and contains these passages:

I have examined the T. and statements in the annexed explanation of this system by the *British, Foreign, and Colonial* Assu. Asso. . . . 7. The plan implies the investment of the net prem. in Consols; and the payment of pol. in Consols. The net ann. prem. of £21 19s. 2d., commencing at the age of 25, provides for the payment of a pol. of £1000 in money, but if Consols are at 98, the office will be called upon to pay £980 in cash. On this transaction there will be a profit to the extent of £20; and these profits are to be distributed among the Consols pol.-holders at the end of every five years (p. 8). 8. To make the operations of the Asso. quite safe, the deposits must also be paid in Consols, or the value in Consols may be paid in cash. The valuation T., as it stands, will therefore represent the amount of Consols in deposit, and payable on pol. of £100 granted at the respective ages. As the net prem. in money will be invested in Consols, generally below par, the amount of Consols held will represent an excess over the Consols claimable by the ins. This will be an additional security, and a portion of this excess will be divisible as profits periodically 9. This plan is throughout the same as that which was sketched in the report to the Reg.-Gen. except that the investments and all the out-payments are to be made in Consols. . . . 13. The shareholders relinquish a large portion of the customary profit on forfeited pol.; but an extension of the transactions of this office will supply a legitimate equivalent. . . . 15. The T. are only applicable to average healthy lives; diseased lives will not be dealt with, and the securities will be national. The business of the office will therefore be intelligible to the shareholders. . . . 23. The pol.-holder who happens to die when Consols are low will sustain a loss, by which his fellow ins. will gain. It is right, therefore, to offer the option of a pol. payable in money; and this accordingly is done. The deposits, however, will always, when withdrawn, be paid in Consols. . . . 29. To complete the plan the pol. should be simple in its form; while the receipt for the ann. prem. should also contain a promise to pay on demand the amount of Consols in deposit, or their cash value, on the surrender of the pol.

Before the termination of the year 1858, the *British, Foreign, and Colonial* (regarding the stability of which so much had been said in the June adv. already quoted) was in the meshes of the Court of Chancery, under the circumstances already stated in our hist. of that Co. The Consols ins. scheme had therefore to await the advent of another ins. asso. prepared to introduce its features to the public.

That the fate of the *British, Foreign, and Colonial* had been in some measure foreseen may be surmised by the fact that during this same year (1858) there had been promoted a joint-stock co. called the *Consols Ins. Asso.* We now propose to follow the fortunes of this Co., so far as they are associated with the development of Consols Ins.; for the scheme varies in several particulars from the preceding.

Early in 1859 there was pub. a sort of pamph. prosp., *Consols Ins. Asso. for effecting Life Ins. and Investments of large or small sums of Money in Connexion with Gov. Securities; Explanation of the System. Chief Offices, 429, Strand, London, W.C.* In this is contained the following letter from Dr. Farr. It bears date Feb. 10th, 1859:

The plans to which you refer are described in the annexed pamph., and were submitted by me to H.M. Gov. after I had constructed the *English L. table*, which, with the paper on the *Finance of Life Ins.*, was pub. by the Reg.-Gen. in the appendix to his 12th Rep. (dated Jan. 12th, 1853). It appeared to me that the system of L. ins. was susceptible of great improvements, and could be most advantageously carried out in a national ins. office, open to the working class as well as to other classes of society.

I felt it to be my duty to place those plans, in the first instance, at the disposal of the Gov., if it should think fit to carry them out; although I was well aware that as the State has hitherto delegated the control of the currency to a great private co.,—the Bank of Eng.,—and left the responsibility of conducting the savings banks to private individuals, it would prob. for the same reasons not undertake to conduct a system of L. ins., however safe, equitable, or advantageous it might appear to be.

I am quite willing that these plans should be carried out by a private asso., on certain conditions, among which I may here specify the following:

The chief features which I contemplated were, the rendering L. ins. safe, equitable, and well accommodated to the wants and means of the public; by divesting the pol.-holder of the risk of losing a large portion of his payments, or of his forfeiting his pol. through inability on his own part to pay the ann. prem.; as well as of the risk arising under an imperfect audit; and by giving him the option at any time of employing the accumulating deposit to his account as a security, or of withdrawing it for use in other ways. This would bring ins. within the reach especially of young men entering life—and of classes who cannot prudently lock up irrevocably a large portion of their prospective income under the old system of ins., however ably it might be carried out by some existing cos.

In the absence of the direct Gov. security and audit, it is indispensable that the investments under these plans should be made in the safest and the most easily convertible securities, I mean the 3 p.c. Consolidated Annu., commonly called Consols; that the current value of such pol., determined from the valuation T. of the actuary, and vouched by some competent authority, should every year be circulated among the pol.-holders; and, moreover, that the add. to the net prem. should be sufficient with the paid-up cap. of the so. to discharge all necessary expenses, and to cover the risks.

He adds:

An extensive asso., founded on these principles, and carrying them out with skill, prudence, integrity, and energy, will do a great public good. I have made in the annexed paper the necessary changes in

the plans and T., so as to render them easily workable by a mixed asso., such as the *Consols Ins. Asso.* paying equitable int. to the subscribers, and dividing the profits between them and the policy-holders.

Now the entire programme is made apparent. Investment in Consols was no part of the orig. project of Dr. Farr. It is only when the scheme loses the security of a Gov. guar., and is proposed to be carried into practice by a joint-stock co., that he sees, or concurs in, the necessity of introducing, if possible, a counteracting element of security. He therefore adopts the investment of the life fund in Consols as the most simple and certain precaution which could be enforced. When the motive is understood, the scheme presents a more intelligible aspect. For a method of ins. embodying so much of the *Deposit* element, investments *easily measurable and readily convertible* become a necessity. The audit: the desirability of an easy method of checking the assets annually, and of apportioning to each pol.-holder his precise portion of the fund, was the end in view. With these objects, and under these circumstances, a Consols basis does not seem unreasonable.

It will not escape the obs. of critical readers, that it might have been more natural for a scheme of national ins. (as was orig. intended) to make its investments in the national securities, than for an enterprise trading for profit to do so; but it is clear, as we have said, that it was not the orig. design. *Indeed it appears from all that has preceded, that Mr. Baylis, and not Dr. Farr, really originated the idea of a Consols basis.* Having thus traced the origin of "Consols Ins.," we propose now to follow up its development.

The *Consols Ins. Asso.*—of the particular hist. of which, as a Co., we shall treat under its proper title, and whose immediate founder was Mr. T. H. Baylis—issued a great variety of documents, and put the Consols feature forward under various phases, so that it is not easy to eliminate these from their "wordy" surroundings, and get at the simple idea. It is announced that "parties resident in any part of the U.K. may join the asso. in either of, or all, the following capacities:" (1) As *Stockholders*; (2) as *Insurers*; (3) as *Borrowers*; (4) as *Investors*. We will now give a synopsis, following the exact language of the prosp., of the advantages held out to each of these:

1. **STOCKHOLDERS.**—This Asso. presents many special and important advantages to parties seeking a means for employing and improving large and small sums of money, in connexion with Gov. securities. Persons of any age may invest from £1 upwards, without incurring any expense, in the Consols cap. stock. 5 p.c. p.a. int. is allowed from the date of the investment, and 20 p.c. of the profits of the Asso. rateably is added. The int. is receivable monthly, quarterly, half-yearly, or yearly, at the option of the investor. It is a fundamental principle of the Asso. defined by the D. of Sett., that one nominal half the amount of each person's investment must be in every case invested permanently in the Gov. Consols, in trustees' names, on behalf of the investors. For every £1 invested, 10s. Consols are purchased. Each investor, on applying personally, or by authorized deputy, at the offices, can at all times ascertain that one-half of his or her investment is represented by an equal amount of Consols. A Consols cap. stock certificate, signed by two of the directors under the seal of the Asso., is issued for each party's investment. The 5 p.c. p.a. int. on the full sum invested, as well as the ann. bonuses it bears, are payable to the legal holder of the certificate on presentation. It is, therefore, a negotiable financial security, having a known financial basis in the Bank of England, like a bank note, and may be passed from hand to hand for monetary purposes. The ann. bonus of 20 p.c. is distributed at so much on each share of, and not according to the amount of cap. paid up. A person who had paid up 5s. on a share would receive as large a share as a person who had paid £1. The Consols cap. stock is divided into shares of £1 each. The whole amount may be paid at once, without any further call or liability, or a deposit of 5s. only on each will be received.

INSURERS.—The fundamental principle adopted by this inst. with respect to the investment of insurers' premis. is, that every shilling of the "net" prem. must be invested in Consols, in trustees' names (who are out of the control of the directors), and held in trust as the property of the insurers, for the sole object of meeting the claims upon pol. Perfect security is thus afforded.

From the commencement of a Consols pol. to its termination, its full value is deposited in the Bank of England, and cannot be touched or made liable for any other engagement: therefore, the inst. is at all times, and under all circumstances, enabled to discharge every pol. claim at once, and without requiring any notice.

It should be observed that 16s. out of each £1 paid as prem. constitute the "net" prem., which is the calculated portion required to be invested at 3 p.c. p.a. compound int., in order to meet the pol. liability. The remaining sum of 4s. out of each £1 is the amount appropriated for man. expenses, bonuses, etc. In order to secure the steady improvement of the net premis. at 3 p.c. compound int., the net rate of int. they are calculated to produce, all the "net" premis. must be invested in Consols, in trustees' names, for and on behalf of the pol.-holders.

The net. premis. constitute a fund standing in the Bank of England, called the Consols Life Ins. Fund. The man. of this fund is regulated by a very carefully drawn D. of Trust, defining the duties of the trustees, and the powers of the pol.-holders. . . . The fund is not liable for any debts or engagements of the Asso., except its pol. The directors have no control over the fund, nor can the present trustees be removed, nor new ones be appointed, except by the pol.-holders, who alone control it.

Regarding **BORROWERS AND INVESTORS**, the Consols element is not involved further than that the amount of accumulated investment was to be paid in Consols; and we need not therefore dwell, at this point, upon the inducements offered to them. An illustration of the working of the Consols Life Ins. plan is given as follows:

Supposing a person aged 30 desired to devote £15 a year for ins. his life. . . he could ins. £588 Consols, and continue insured for that sum year by year so long as he paid the ann. prem. of £15. He would also be entitled to his share of the ann. bonuses. Every prem. paid would be divided into three separate accounts, viz. . . . 1. The current risk account, £5 5s. 2. The deposit account, £6 15s. 3. The management and bonus account, £3—£15. The first two items, amounting to £12, . . . constitute the *net premis.* These are invested in the Consols L. Ins. Fund. . . . The above explanation has reference to the first year's prem. The same system of division is applied to all the other premis., subject to some slight variation in items 1 and 2, consequent on the increase of age of the life

ins. The insurant's deposit or banking account goes on increasing year by year in the following manner, . . . supposing the ann. prem. of £15 to be regularly paid, viz.:

No. of Ann. Prems. Paid.	Total amount of Prems. Paid.	Consols in deposit withdrawable at will.	No. of Ann. Prems. Paid.	Total amount of Prems. Paid.	Consols in deposit withdrawable at will.
	£	£ s. d.		£	£ s. d.
1	15	6 15 0	16	240	124 10 0
2	30	13 10 0	17	255	133 10 0
3	45	20 5 0	18	270	143 5 0
4	60	27 15 0	19	285	152 5 0
5	75	34 10 0	20	300	162 0 0
6	90	42 0 0	21	315	171 15 0
7	105	49 10 0	22	330	181 10 0
8	120	57 15 0	23	345	192 0 0
9	135	65 5 0	24	360	202 10 0
10	150	73 10 0	25	375	213 0 0
11	165	81 15 0	26	390	223 10 0
12	180	90 0 0	27	405	234 0 0
13	195	98 5 0	28	420	245 5 0
14	210	107 5 0	29	435	255 15 0
15	225	115 10 0	30	450	266 5 0

Thus at the end of 10 years the insurant would have in deposit, as his absolute property, £73 10s. Consols, out of £150 paid, besides having been insured for £588 Consols throughout the whole period, and having received several bonuses!

We are also told "when and how the prems. are invested":

A list of all pol. effected is made up monthly by the act., showing the distinctive number, the age, the initials, the sum ins., and the amount of prem. paid on each pol. These monthly lists are certified by the act., and the amount that should be invested in Consols each month is shown by them. The lists are checked by a committee of the directors. At the following board meeting a draft for the amount to be invested, viz. four-fifths of the prem. received, is drawn, and handed over to the stock-brokers, to invest to the credit of the L. Ins. Fund. The brokers certify having invested the money, and they hand over the stock certificates to the trustees, for and on behalf of the ins., who certify that they have received the amount in trust. The monthly account is then advertised in the *Times* and other papers, and each pol.-holder is invited to look after his own number and initials in the adv. and satisfy himself that his prem. is invested in Consols. This enables every insurer to be his or her own auditor. A detailed account of every pol. in force is made out at the end of each year, which is examined and certified by the act., trustees, directors, stockholders and Dr. Farr, and every pol.-holder is entitled to receive a copy.

Attention is next drawn to the "Tables of prem. and Valuation Tables":

The T. of prems. differ from those ordinarily employed in L. ins. transactions. It is customary, on the ordinary plan, for L. ins. prems. to vary with age, and the sum ins. to be fixed; consequently a person contemplating insuring has to decide how much money to ins. for—say £100, £1000, or £5000—and not how many pounds of ann. prems. he desires to pay. According to his age, he has to pay so much p.c. p.a. as prem., and at almost every age of life the prem. consists of pounds, shillings, and pence, which involves a calculation in order to ascertain the amount of prem. to be paid. *In the Consols Ins. T. the prem. is uniform, and the sum ins. varies according to age; so that the transaction is greatly simplified.*

The pub. of the valuation T. in the prosp. is an important advantage to pol.-holders, because they can ascertain the current value of their pol. without referring to the office.

After all this there is "a summary of insurants' advantages" under the Consols system, from which we need take but a few passages:

2. It secures to each pol.-holder the right of ceasing his or her ins. at any time, on condition of receiving its full stated current value in Consols on surrendering the pol.

6. As a known and ample means of providing security for any fluctuations that may occur in the rate of mort. amongst the ins., there will be a permanent investment of a large portion of the paid-up cap. of the Asso. in Consols in the names of the trustees of the Life Ins. Fund.

12. When a Consols pol. becomes a claim by reason of death, the amount of Consols ins. is transferred to the representatives of the deceased pol.-holder; thus providing the best of all investments without trouble. Oftentimes difficulty or danger attends the investment of money paid by L. offices; this is entirely obviated by the trans. of Consols in the liquidation of claims. The Asso. will, if it is preferred, pay the current value of Consols in cash, in discharge of pol. claims.

20. Consols pol. cannot be disputed, except in cases of deliberate fraud, and under no circumstances can the ins. forfeit the amount of Consols in deposit.

Finally we must reproduce a para. setting forth the "unexampled security provided":

It will be seen that this system for conducting the bus. of L. ins. is entirely free from doubt or uncertainty. The security is altogether unexampled. It depends not upon unpaid share cap. Not upon the solvency of a fluctuating body of shareholders. Not upon the position, respectability, or good faith of a board of directors, subject constantly to change, but upon the known possession of Consols of a sufficient sum to provide for all liabilities, which sum is held in trust, and which cannot be used, or made liable for, any other purposes than that of meeting pol. claims. Nothing but absolute bankruptcy can shake such a security.

It is a noticeable feature that throughout a lengthy and elaborate prosp. there is not one word concerning, or even the slightest reference to, that greatest of all drawbacks to Consols investments—the uncertainty of the amount which can be realized on sale. From this one element of uncertainty alone, a Consols pol. was rendered one of the most uncer-

tain investments which can well be imagined—it being impossible to foresee even for the space of 24 hours what it would realize for the benefit of those interested.

We need here say no more concerning the fate of the *Consols* Ins. Asso. than this, that while its founders and managers assumed to have surrounded it with elements of security and stability, they, or some of them, managed very speedily to show that it had not, in reality, one element of security inherent to it: for it ended in one of the most miserable *fiascos* recorded in modern ins. hist. [*CONSOLS* INS. ASSO.]

In 1859, the same year in which the *Consols* was completely estab., there was also founded the *Public Life* Ins. Asso., which commenced business on a *Consols* basis. Indeed its entire scheme was precisely that of the *Consols* Co., and purported to be drawn from Dr. Farr's plan as set forth in the 12th R. of Reg.-Gen., which however, as we have seen, did not embrace the *Consols* feature. The founder of the *Public* was Mr. G. J. Farrance, who, it was understood at the time, claimed to have originated the "*Consols*" idea. The Co. did a small bus. only, and passed out of sight altogether in 1862.

In 1867 there was founded in Manchester, the *British Imperial* Ins. Corp., Lim., which is in fact a revival of the *Consols* system of Ins., with some modifications, introduced by Mr. Baylis. The immediate founder of this Co. was Mr. John A. Feigan, who had held office under the *Consols* Co.; and he is its Gen. Man. He purchased the "copyright" in the new development of *Consols* ins. from Mr. Baylis; and the latter has never had any share in the man. of this Co. We propose to take our readers through the prosp. of this latter co. in the hope of aiding them to a clear perception of the project in its new form—for in certain points it differs essentially from its predecessor. We ought to add that this project obtained the sanction of Dr. Farr, who became and remains auditor of the Co., as he had been of the *Consols*.

The prosp. from which we now quote bears date Nov. 1866: *British Imperial* Ins. Corp. Lim. for Gov. Security Banking Life and Self Ins., prepared by Dr. Farr, F.R.S., Reg.-Gen. Department, Somerset House, Lond. Head Offices, 81, King Street, and 60, Spring Gardens, Manchester. Chief Office for Ireland, 60, Wm. St., Dublin. Incorp. pursuant to Act of Parl. The details of the scheme commence at p. 11:

This Corp. is founded pursuant to Act of Parl., for the purpose of introducing important advantages into the practice of L. ins.:

1. *A System of Gov. Security Banking Life Ins.*—A banking account being opened in Gov. securities for each pol., to the credit of which its full value is placed year by year, and held in trust as the property of the insurer.
2. *Assigning to each pol. a current realizable value for every prem. paid*, such value being determined by a pub. pol. valuation T., which value is indorsed on each pol.
3. *The investment in Gov. securities in trust as the sole property of the insurer*, of the full value of each pol. for every prem. paid, such pol. not being liable for any other engagement than that of providing for the pol.
4. *The vesting absolutely the full power to control the value of every pol. in each insurer.*
5. *The value of a pol. banking account under this system* amounts to nearly 50 p.c. of all prems. paid.
6. *Making pol. negotiable securities of the highest order*, always available to their holders for monetary purposes.

Such are some of the valuable improvements presented by the *Brit. Imperial* in L. ins. transactions. No other form of L. ins. confers on insurers such solid benefits as those enumerated.

At page 19 we arrive at another stage of elucidation:

Under this system the prevailing practice of investing insurers' prems. in miscellaneous securities is abandoned. The T. are calculated on the principle that money can be safely employed for long periods of years to produce 3 p.c. compound int.; a higher rate, therefore, is not sought, risk is consequently avoided, and the conditions of the calculations are complied with.

The channel in which insurers' prems. must be invested (under trust, as the property of insurers), viz. Gov. securities, is defined before the ins. is effected, and cannot be departed from; thus insurers are provided with the best security in the world as the basis for their pol.

The T. of rates employed is the National English L. table, pub. in the Reg.-Gen. 12th Rep., which is the truest index of the value of human life extant.

Insurers enjoy the absolute right of ceasing their pol. at any time, and receiving back about one-half of all prems. paid.

There can be no lapsed pol. under this system, nor complaints that insurers have been arbitrarily deprived of any advantage properly purchased by their prems.

In fact the *Gov. security system* imparts an entirely new and improved character to L. ins. transactions; it removes all doubts as to the want of security and equity hitherto attaching to L. ins.; it elevates L. pol. to as high a standard of value as Bank of England notes: and be the pol.-holders many or few in number, they can at any time, if so disposed, present the whole of their pol. at once, and receive their full values for them in exchange.

The prems. here were upon the ordinary method of so much for each £100 insured, varying with the age. Thus at age 30, the ann. prem. being £2 11s. 3d., of which 19s. would be invested for current risk, £1 2s. for "Banking Account" withdrawable, leaving 10s. 3d. for expenses of man., as med. fee, agents' commission, pol. stamp., etc.

A T. is given of the sum at Banking Account, varying with the age of the insured, and the number of ann. prems. paid on the pol. Thus a person insuring at 30, and having paid 10 prems. on his £100 pol., or in all £25 12s. 6d., can withdraw £12 10s., and close his account with the co. This sum on deposit does not become forfeited with the lapse of the pol., but can be claimed at any time thereafter.

Eighty p.c. of the prems. paid are to be invested in *Consols*; 20 p.c. is appropriated for man. expenses. "No departure nor deviation from this rule can take place." The mode of investing the prems. is the same as that which prevailed in the *Consols* Co.

The following is the form of pol. given in the prosp.:

Pol. No. Date. Sum insured, £..... Prem. due every year on the..... Age next birthday.....
John Prudence, of Market Street, Manchester, aged 30, having lodged documents at this office affirming that he is at this date in good health, and having paid his first ann. prem. of £12 16s. 3d., We promise to pay, subject to the conditions specified at the back of this pol., £500 sterling to his legal representatives, three months after satisfactory proof has been furnished of his decease. Provided that he shall so long as he shall live pay into this office, or to its authorized agents, on the 10th day of July or within 30 days following of every year, the ann. prem. of £12 16s. 3d. We also promise to pay to the said John Prudence, or to his order on demand, the banking account standing to the credit of this pol., as indorsed on the back, on his surrendering the same with his last renewal receipt. Signed and sealed on behalf of the *Brit. Imperial Ins. Corp., Lim.*, this ... day of ...

Notice.—If this pol. is used as a security, the renewal receipt should accompany it. The renewal receipt shows the exact amount standing to the credit of this pol. in Gov. securities up to the date of the last payment.

Then on the back are indorsed “Conditions under which this pol. is issued”:

This pol. and the ins. thereby effected will become void, and all claim on the Corp. will cease—1. If the party whose life is ins. should go beyond the limits of Europe without having paid such extra prem. as the directors may require. 2. If he shall enter upon or be engaged in any active military or naval service. 3. If he commit suicide. 4. If the amount in deposit be permanently withdrawn.

The L. ceases to be ins. if the prem. be not paid within 30 days after the day within named for its payment; but in no case can the banking account, as stated below, be forfeited.

Privileges of the holder of this pol.—1. He is entitled to the banking account according to the T. below; and if this be not withdrawn by him, the current prem. for the time being having been punctually paid, his legal representatives are entitled to the sum ins., 3 months after proof of death. 2. He may exchange this pol. for another, which will cover the risk of foreign climates, and military and naval service. 3. Should the person insured commit suicide, his representatives are entitled to the sum then in deposit to the account of the pol. 4. Should he discontinue the payment of the fixed ann. prem. as it falls due, his life ceases to be insured; but he can either withdraw the amount in deposit, or have a new pol. for the sum which that deposit will insure, whatever may then be the state of his health at the time. 5. The payment of these sums is guaranteed by the subs. cap. of the Corp. 6. He will receive an ann. audit sheet, showing the assets invested in Gov. securities, and the amount so invested to the account of this pol.

We need not give the T. “Banking account of this pol.” It works out in almost the exact proportions of that already given in the case of the *Consols Co.* We observe that the pol. in use by the Co. more recently has undergone some modifications of a prudent, and indeed necessary character.

The form of return of new pol. referred to is as follows:

No. of Pol.	Age of Life Ins.	Initials of insured.	Prem. paid on each pol.	Proportion of prem. invested on account of each pol.	Amount of Banking Acc. withdrawable at will by each pol.-holder.	Amount insured and payable in the event of death.
1	2	3	4	5	6	7
			£ s. d.	£ s. d.	£ s. d.	£
1	43	W. M.	3 16 3	3 1 0	1 15 0	100
2	25	J. H.	2 5 0	1 16 0	0 19 0	100
3	32	P. W.	2 14 2	2 3 4	1 4 0	100

The form of ann. audit sheet is very much the same; but deals with the totals paid upon each pol., and standing to its credit. Attached to this last sheet are the certificates of the auditors that the returns are correct, and also of the trustees, to the effect that they hold the sums in trust for the pol.-holders.

Three important facts are proved by the foregoing rep. and audit sheet—1. That the system provides Gov. security for L. pol., instead of that of a private co., as in ordin. L. ins. Each insurer is a fund-holder. 2. That the system assigns a defined and expressed current realizable value to each pol.; which value can at any time be obtained *on demand*, like exchanging a Bank of Eng. note for money. 3. That the system does away with the ordin. plan of lapsing pol.

The essential difference between the *British Imperial* and the *Consols Cos.* may be stated in a very few words: whereas the *Consols Asso.* threw the *speculation* of the sum to be received under any of its pol. upon the holders of such pol., the *Brit. Imperial* takes the aggregate burthen of this speculation upon itself. For a given prem. paid it guarantees the return of a given sum of *money*, either on withdrawal, or death—and this quite irrespective of any profit or loss it may make upon its Consols investments. This, properly enough, removes the burthen from the pol. to the shareholders; and so remedies a very glaring defect in the orig. Consols scheme.

The *Brit. Imperial* is a respectably constituted co. Great efforts and considerable sums of money have been expended in making its features widely known. These have been attended with moderate success.

In 1867, also, the *Colonial Ins. Corp.* was founded. It embodies this feature:

At the end of every third year there is invested in Gov. securities the office *surrender value* of all the pol. entitled to parti. in profits which have been in force for 3 years and upwards. Certificates are issued to every parti. pol.-holder at such triennial periods, informing him of the par value of the stock to which he is entitled at that date on the surrender of his pol. On the back of each parti. pol. is indorsed a form of receipt, which, being properly filled up and signed by the pol.-holder, will,

on presentation to the office, secure to him a transfer of the proper amount of stock to which he may be entitled in consequence of the surrender of his pol. to the office.

This arrangement secures to the office the advantage of a range of three years in which to make its stock investments : and the pol.-holders have a like option regarding the surrender of their policies.

The most prominent development of the scheme of Consols ins. dates from 1870, when the *Positive Government Security L. Assu. Co., Lim.*, was founded. We have, indeed, a prosp. dated 1869 ; but that arose from the fact that the scheme upon which the Co. is founded had been perfected some time previously, as will presently appear. We take a prosp. dated 1870, *Explanation of Positive Gov. Security Life Assu., which is unlike any other plan known, because it provides*, etc. [We shall see what it provides presently.] Among the "objects" set forth in the memorandum of asso. is the following, "To invest any portion of the prem. paid by assurers on L. pol., and also any portion of the paid-up cap. of the Co., in trust, either in Brit. Gov. or other securities, specially to provide," etc. The cap. of the Co. is £500,000, in shares of £1. In a "note" to this ed. of the prosp. there is the following :

In May, 1869, the *Masonic and General Assu. Co., Lim.*, first introduced, under license from the inventor, the new and orig. system called *Positive Life Assu.* to the public. The bus. transacted has been considerable, although the system is, comparatively speaking, still unknown. Abundant evidence has, however, been derived to testify that if a new inst. were formed, under a general and appropriate title, possessing necessary legal powers for carrying it out effectively, on the basis of providing Gov. securities for pol., a far larger bus. could be obtained than by a class inst., whose prem. funds are invested in miscellaneous securities.

This purports to explain the necessity for organizing the *Positive Co.* The remainder of this "note" will be given in our hist. of the *Masonic and Gen.* and the *Positive Cos.* The inventor referred to in the above passage is Mr. T. H. Baylis ; and he, with the assistance of Mr. Cleland, Mr. Henderson, and others, founded the *Positive Co.*

We propose to give an outline of the scheme ; for although the Consols element is but a small feature in it, yet it is impossible to render the scheme intelligible without regarding it pretty much as a whole. There is a "preface" to the prosp., wherein the reasons why L. ins. in Gt. Brit. has made such slow progress are discussed. We must content ourselves with taking one or two passages :

One of the main reasons why the American L. offices transact so much more bus. than ours is *that the former command the confidence of the public, because they are under Gov. supervision ; indeed the Gov. is morally responsible for their solvency.* Every office is compelled to make returns on oath, in forms supplied by the Ins. Department, showing its condition on the 31st Dec. each year. These returns are verified, and reported on in such a manner as proves the stability of the undertakings. So that, in America, the financial condition of every L. office, its liabilities, assets, expenditure, profits, progress, and every particular, is well known to the public generally ; and on this satisfactory knowledge the offices seek to obtain public support. Whereas in this country it is well known that L. offices are not under Gov., very little is known of their positions—only so much as the administration are disposed to pub. The result is that our progress is very slow, and is not likely to improve until a more satisfactory system is presented to the public than has yet been in extensive operation.

Then with regard to ordinary L. assu. bus., serious objections have always been successfully urged to it. The absence of proved security *that pol. will be paid at maturity*, their liability to total or partial forfeiture by the accidental omission to pay an ann. prem. throughout life, or death by duelling, or foreign travel, and the want of benefit to the assured whilst living. *Hundreds of thousands of instances are on record where great hardships have been experienced from one or other of these objections.*

The italics in the first of these para. we take as we find. Those in the second are ours, as are those in the next :

The *Positive Gov. Security L. Assu. Co., Lim.*, has been specially constituted to effect important improvements. On the points of security for pol.-holders, non-forfeiture of pol., surrender values, and conferring personal benefits on the assu. whilst living, it presents a system which is perfectly original and eminently sound in principle, and is described in the following pages. . . . *The advantages it offers over ordin. L. assu. may, to a certain extent, be compared with those of freehold (with Gov. titles) over leasehold properties ; or the certainty of the Gov. funds over all other investments.*

Under the *Positive* system a L. assu. is represented by a short, simple, indisputable, and negotiable contract—in fact a promissory note, bearing a defined, realizable value, held specially in trust in Consols ; receivable by "the bearer" at three days' sight, or on the death of the assu. There are no covenants to comply with ; because each prem. paid purchases a property outright, without reference to any condition.

We now reach the body of the prosp., wherein most of the points already spoken of are reiterated, in some cases over and over again. The first distinct feature we meet with is the following :

Positive L. assu. are paid for by a defined number of ann. prem., varying from 1 to 5, 10, 15, 20, 25, 30, or more years, at the option of the assu., instead of continuing throughout the whole of life. This is a great improvement on ordinary L. assu. practice, because it is better to encounter payments in the early productive period of life than at an advanced age . . . Persons who assu. young pay for their assu. before reaching the prime of life, and are therefore freed from all anxiety as to being able to pay the life-long tax attaching to an ordin. L. pol. in old age. . . . Assu. on this system may be effected for amounts varying from £50 upwards.

That the plan here set forth is an improvement, all candid minds must admit. All life offices should adopt it. Of course the prem. have to be increased in a corresponding degree. The entire working of the plan will be best shown by the following T., which we take from the prosp. without curtailment :

TABLE showing the cost of a *Positive Gov. Security Life Assu.* of £100, paid for by 30, 25, 20, 15, 10, or 5 Ann. Prem. ; and also the relative amounts of *Positive Notes* purchased by such Prem. in each case. With participation in profits.

Age next Birth-day.	30 Prem.	25 Prem.	20 Prem.	15 Prem.	10 Prem.	5 Prem.
	Amount of Positive Note for each Prem. paid, being One-thirtieth part of each £100 assu.	Amount of Positive Note for each Prem. paid, being One Twenty-fifth part of each £100 Assu.	Amount of Positive Note for each Prem. paid, being One-Twentieth part of each £100 Assu.	Amount of Positive Note for each Prem. paid, being One-Fifteenth part of each £100 Assu.	Amount of Positive Note for each Prem. paid, being One-Tenth part of each £100 Assu.	Amount of Positive Note for each Prem. paid, being One-Fifth part of each £100 Assu.
	£3 6s. 8d.	£4 0s. 0d.	£5 0s. 0d.	£6 13s. 4d.	£10 0s. 0d.	£20 0s. 0d.
ANNUAL PREMIUMS FOR EACH £100 ASSURED.						
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
20	2 7 1	2 11 11	2 19 7	3 12 9	4 19 10	9 2 2
21	2 7 11	2 12 10	3 0 6	3 13 11	5 1 5	9 5 1
22	2 8 9	2 13 9	3 1 7	3 15 2	5 3 0	9 7 11
23	2 9 8	2 14 8	3 2 7	3 16 5	5 4 8	9 10 11
24	2 10 7	2 15 8	3 3 8	3 17 8	5 6 4	9 13 11
25	2 11 6	2 16 8	3 4 10	3 19 0	5 8 1	9 17 0
26	2 12 6	2 17 8	3 6 0	4 0 4	5 9 11	10 0 2
27	2 13 7	2 18 9	3 7 2	4 1 9	5 11 9	10 3 5
28	2 14 7	2 19 11	3 8 4	4 3 2	5 13 8	10 6 9
29	2 15 8	3 1 1	3 9 7	4 4 7	5 15 7	10 10 2
30	2 16 10	3 2 3	3 10 11	4 6 2	5 17 6	10 13 7
31	2 18 0	3 3 6	3 12 3	4 7 8	5 19 7	10 17 2
32	2 19 3	3 4 9	3 13 7	4 9 3	6 1 8	11 0 10
33	3 0 7	3 6 1	3 15 1	4 10 11	6 3 10	11 4 7
34	3 1 11	3 7 5	3 16 7	4 12 8	6 6 0	11 8 5
35	3 3 3	3 8 10	3 18 1	4 14 4	6 8 3	11 12 4
36	3 4 9	3 10 4	3 19 8	4 16 2	6 10 7	11 16 4
37	3 6 4	3 11 10	4 1 3	4 18 0	6 13 0	12 0 5
38	3 7 11	3 13 6	4 2 11	4 19 11	6 15 5	12 4 7
39	3 9 8	3 15 2	4 4 8	5 1 11	6 18 0	12 8 11
40	3 11 5	3 16 11	4 6 6	5 3 11	7 0 6	12 13 3
41	3 13 4	3 18 9	4 8 5	5 6 1	7 3 2	12 17 9
42	3 15 4	4 0 9	4 10 4	5 8 3	7 5 11	13 2 4
43	3 17 5	4 2 9	4 12 5	5 10 5	7 8 8	13 7 0
44	3 19 9	4 4 11	4 14 7	5 12 9	7 11 7	13 11 9
45	4 2 1	4 7 3	4 16 10	5 15 2	7 14 6	13 16 8
46	4 4 8	4 9 8	4 19 3	5 17 8	7 17 7	14 1 8
47	4 7 4	4 12 3	5 1 9	6 0 3	8 0 8	14 6 9
48	4 10 3	4 14 11	5 4 5	6 3 0	8 3 10	14 12 0
49	4 13 4	4 17 10	5 7 3	6 5 10	8 7 2	14 17 4
50	4 16 8	5 1 0	5 10 3	6 8 11	8 10 8	15 2 10
51	5 0 3	5 4 5	5 13 5	6 12 1	8 14 3	15 8 5
52	5 4 1	5 8 0	5 16 11	6 15 6	8 18 1	15 14 2
53	5 8 3	5 11 11	6 0 7	6 19 3	9 2 1	16 0 0
54	5 12 9	5 16 2	6 4 7	7 3 2	9 6 4	16 6 2
55	5 17 7	6 0 10	6 9 0	7 7 5	9 10 11	16 12 7
56	6 2 10	6 5 10	6 13 9	7 12 1	9 15 11	16 19 6
57	6 8 7	6 11 4	6 18 11	7 17 1	10 1 3	17 6 10
58	6 14 7	6 17 1	7 4 4	8 2 3	10 6 8	17 14 2
59	7 1 0	7 3 2	7 10 1	8 7 8	10 12 2	18 1 5
60	7 7 8	7 9 7	7 16 1	8 13 4	10 17 11	18 8 10

Example.—A person aged 30 may assure the sum of £100 by paying either 30 prem. of £2 16s. 10d. each, 25 prem. of £3 2s. 3d. each, 20 prem. of £3 10s. 11d. each, 15 prem. of £4 6s. 2d. each, 10 prem. of £5 17s. 6d. each, or 5 prem. of £10 13s. 7d. each. On payment of each prem., the assured would receive a positive note for a 30th (£3 6s. 8d.); a 25th (£4); a 20th (£5); a 15th (£6 13s. 4d.); a 10th (£10); or a 5th (£20) part of the £100 assured, regulated by the number of prem. paid. Besides the positive notes, the assured would hold a positive pol. for the bal. of the sum assured as long as the renewal prem. were paid, less the positive notes issued.

The following is the form of "policy" by means of which the contract is carried into specific effect:

Sum assured £100, to be paid for by ten ann. prem. of £5 17s. 6d. each. Number of pol. 1.
JAMES MONEY, of Lombard St., in the City of London, hereinafter called the assured, having applied to the above-named Co. (hereinafter called the Co.), to assu. his own life, and having delivered

a statement to the office, in writing, dated the 18th Oct., 1869, signed by him; and having paid the first prem. of £5 17s. 6d., and having received the first positive note for £10, the Co. contracts with the assu., his representatives and assigns, as follows:—

The Co. will, within 3 calendar months after proof of the death of the assu., whilst this pol. is in force, pay to the representatives or assigns of the assu. the sum of £90, making together with the first positive note for £10, £100, and also all bonuses accruing to the assu.

The prem. of £5 17s. 6d. must be paid on the 19th day of Oct. in the next, and in each of the eight succeeding years, or within 30 days thereafter.

On payment of each prem., a positive note for £10, "payable to bearer" 3 months after the death of the assu., will be issued.

Such positive notes shall be issued to the legal holder, or last known legal holder of this pol.

Every such positive note may be presented at the head office of the Co. at any time, and will be redeemed 3 days after presentation, by payment of £2 7s., and the redemption, or payment of such note, in favour of, or to bearer, shall discharge the Co. as against all parties, and from all claims in respect of the amount of such positive note.

The payment and redemption of every such positive note may be enforced, notwithstanding this pol. determines, or is, or becomes void.

The sum of £90 mentioned above as payable under this pol., independently of the first positive note, will be reduced by the amount of all positive notes to be hereafter issued, whether redeemed, out-standing, or not, as per T. indorsed hereon.

The age of the assu. having been admitted by the Co., this pol. is absolutely indisputable.

There are the following memo. regarding "freedom from restrictions" and "admission of age," etc.:

This contract is free from all restrictions as to right to travel, foreign residence or other usual limitations. The assu. may travel where he pleases. Whenever death takes place, the Co. is compelled to pay the sum assu.; or during life the surrender value expressed on the face of the positive note. No question on this [age] or any other point can be raised after the issue of the pol. The Co. makes its own conditions before accepting a proposal. When once it has done so, it assumes all responsibility, and limits its duties afterwards to those of receiving premiums and paying claims as they arise.

The form of positive note is as follows:

Positive Note for £ No. of Note, The Positive Gov. Security L. Assu. Co., Lim., promise to pay to bearer 3 months after the death of . . . [the insured] the sum of £
Directors Secretary.

Memorandum.—This positive note is issued under a pol. dated the . . . 186 , Numbered . . . containing a clause that such positive note will be redeemed 3 days after presentation at the head office of the Co. by payment of £ . . . , being the amount standing to the credit of the said pol. in Consols in special trust.

The reader is informed that these positive notes are negotiable "by simple delivery, like a bank note. No assignment, trans., document, nor signature is necessary to give the transaction validity."

We next have an outline of the "arrangements for carrying out the Positive system":

The Memorandum of Asso. empowers the Directors to create trusts for the safe investment of assurers' premiums, and a portion of the paid-up cap.; the object being, to hold these moneys as funds not liable for any other than pol. engagements. Acting under this power, the directors create a general trust, and appoint trustees. The action of the trust is regulated by a deed, which defines its objects and purposes. The deed is printed, assurers and shareholders being entitled to a copy.

The trust is composed of two funds, viz.:—1. *The L. Assu. Fund*, which consists of the net prem. paid by assu. *The fund is invested in Consols exclusively, in trustees' names, to provide for pol.* 2. *The Assurers' Guarantee Fund*, arising from the investment of one-fifth of the paid-up cap. in Consols, in trustees' names, to provide for any fluctuations that might arise in the mort. amongst the lives assu. These two funds are only liable for pol. engagements; they are under the control of the trustees, over whom assurers and shareholders only have any power, subject to the regulations of the general D. of Trust. The provisions of the D. of Trust cannot be altered without the consent of the assurers and shareholders.

The Mem. of Asso. and D. of Trust authorize the creation of separate trusts, to act in harmony with the central trust. A separate trust is created by appointing two suitable persons, to act in conjunction with two of the central trustees.

An ann. report and audit sheet is drawn up by the Actuary, giving full particulars of all Positive pol. and Positive notes in force on the 31st Dec. in each year, rendered in a form that enables pol.-holders to ascertain, at any time, that the full value of each pol. or positive note is held in Consols, in trust, to provide for it. A copy of the ann. rep. is forwarded to each pol.-holder, or may be obtained on application at the chief offices, or agents.

Under these arrangements and others, which are more fully explained in the D. of Trust, every district or class in the U. K. can be supplied with its own trust, have its own local trustees, as the custodians of the assurers' premiums and shareholders' paid-up cap.

The plan of "investing premiums." is precisely the same as that adopted by the Consols Co., and set forth in the early part of this art.

The rates of prem. of the Co. are based upon the *English Life T.*, loaded 20 p.c. The surrender values are calculated at 40 p.c. of the premiums paid. It is held out among the advantages of the system that persons may ins. for the benefit of families or friends "privately, without mentioning names in wills, or in any other manner." Again, that sums payable under positive notes are exempted from legacy duty or other charges; and that neither probate nor letters of administration are necessary to legalize the payment of positive notes.

All payments under pol. or positive notes are made in cash, and not in Consols—the risk of dealing in which falls therefore upon the Co., as in the case of the *Brit. Imperial*.

The scheme of the Co. has been the subject of much criticism. A considerable cap. has been raised—sufficient, if preserved for the purpose, to protect the pol.-holders from all danger arising from fluctuations in Consols; and, assuming that it does not suffer too severely from fraud—to which it grants some facilities; that it obtain a well-selected life bus., at a small cost; and that its affairs be conducted with prudence and strict economy, it may prove all that its pol.-holders can desire.

A later development of Consols Ins. occurs in the case of the *National Funds Assu. Co., Lim.* The Co. was founded in 1870, under the designation of the *Minerva Banking Assu. Corp., Lim.* In 1872 it adopted its present name, and issued its present prosp., from which we shall quote. The authorized cap. of the Co. is £250,000, in shares of £5. The Man. is Mr. R. F. Henderson, already referred to in connexion with the *Positive*. The Sec. Mr. W. H. Cooke, who has had large experience in ins. enterprise. The gen. features of the Co. very much resemble those of the *Positive*; but in the matter of investments, this Co. does not limit itself to Consols, but takes the wider range of "Gov. securities," in which may be included all stocks possessing a Gov. guar. The following purports to be a summary of the new and special advantages offered by the Co. to pol.-holders:

1. Assurers absolutely safe. An ample "policy fund" being invested in Gov. securities for the one and only purpose of paying pol. as they become due. *Note.*—The "pol. fund" consists of all net prem. together with not less than 20 p.c. of the share cap. 2. Each prem. paid is treated as a separate transaction, and secures a completed pol., entirely independent of previous or after payments; consequently (3) no pol. can ever be forfeited. 4. Assurers may discontinue paying prem. at any time. The pol. obtained by previous payments will always remain in force. 5. Loans on most advantageous terms can be obtained upon the deposit of the pol. alone, in three days, and with perfect privacy; consequently (6) pol.—which are issued in the form of promissory notes—are negotiable and readily available as a marketable security. 7. Shareholders having share warrants payable to bearer are free from all future liability.

The following is the form of the "Assu. Promissory Note":

No. $\frac{1}{6}$ P. 637.

No. $\frac{1}{6}$ P. 637.

National Funds Assurance Company, Limited,

33, Finsbury Square, London, E.C.,

£100: 0: 0

Jan. 16th, 1873.

At seven days' sight after the death of John Prudence, of Cheapside, London, the *National Funds Assurance Company, Limited*, promise to pay to bearer the sum of one hundred pounds sterling, value received.

Countersigned by _____ For and on behalf of { _____ } Directors.
Examined by _____ the Company. { _____ }

This note is the first issued in connexion with a pol. dated 16th Jan., 1873, numbered 637, and will be taken up by the Co. 3 days after presentation for that purpose, on the following terms:—

On or after January 16, 1874	For the sum of £21 7 2
On or after January 16, 1877	For the sum of £26 13 11½
On or after January 16, 1880	For the sum of £32 0 9

The prosp. explains that the "second note would be numbered $\frac{2}{6}$ P. 637, and stated in the indorsement or memorandum to be the second. The next would be $\frac{3}{6}$ and third, and so on, the last note being $\frac{6}{6}$ P. 637, to signify that Policy No. 637 has been completed, and the indorsement notice would be 'the last,' and the word 'completed' would be added before the word 'pol.' in the first line." And the following add. explanations are added:

It will be observed that this promissory note is, in actual fact, a complete pol. It is in itself a valid document, whether any other prem. shall be paid or not. Hence it cannot be forfeited; and an assu. having once paid one or more prem., remains during his lifetime assu. for a proportionate part or parts of the sum orig. assu., losing only that part for which he does not pay prem.

Thus the promissory note given as an example shows that John Prudence has taken out a pol. No. 637; that he has assu. for £500, for which he is to pay, in all, 5 prem. On paying his first prem., he receives his first promissory note, or pol. for £100, being one-fifth of the sum assu. He would have 4 more prem. only to pay, on payment of each of which he would receive a promissory note for £100, so that on paying his 5th and last prem., he would have no more to pay, but would be possessed of 5 promissory notes or 5 pol. for £100, making the £500 which he originally assu., and which would be payable to his representatives whenever his death should occur, even though only one prem. should have been paid; provided that while living he had duly met each prem. as it became due. If, however, after making his 1st, 2nd, or 3rd payments, he should, on any following prem. becoming due, desire to discontinue paying, he will be at perfect liberty to do so, without losing any benefit from his previous payments; he would still be possessed of promissory notes for £100 each for every prem. he had actually paid, and would remain assu. for those sums, together with all bonuses accruing, up to the close of his life.

These promissory notes, it will be seen, are payable to bearer, and may therefore be transferred, without trouble, inconvenience, or expense, by simple delivery. They can be deposited at any time at the Co.'s office as security for loans on extremely liberal terms.

The payment of prem. may extend over 5, 10, 15, 20, 25, or 30 years. The T. of prem. is arranged in the same form as that of the *Positive*. The amounts are a shade lower.

The form of pol. by which the contract is carried out is as follows:

National Funds Assu. Co., Lim., 33, Finsbury Square, Lond., E.C., Jan. 16th, 1873. Sum assu. £500, by five ann. prem. of £53 7s. 11d. each. No. of pol. 637. Age 30.

John Prudence, of Cheapside, Lond., hereinafter called the assu., having applied to the above-named Co., hereinafter called the Co., and having duly complied with all the previous requisitions of the Co., to their satisfaction, and having paid the first prem. of £53 7s. 11d., and having received the Co.'s first note of hand for £100, the Co. hereby contracts with the assu. as follows:—

1. The Co. will, in 7 days after sight, on satisfactory proof of the death of the assu., whilst this pol. is in force, pay to the representatives or assigns of the assu., or to bearer, the sum of £400, making, together with the Co.'s first promissory note for £100, delivered herewith, a total sum of £500 assured.

2. This pol. shall be considered to be in force if the prem. of £53 7s. 11d. shall be paid on or before the 16th day of Jan. in the next and in each of the four succeeding years, or within 30 days thereafter.

3. On payment of each prem. a promissory note for £100, payable to bearer at 7 days' sight after the death of the assu., will be issued by the Co.

4. Every successive promissory note issued by the Co. in connexion with this pol. shall be deducted from the balance of the pol. remaining in force at the time of the issue of such promissory note.

5. The reduction made on the issue of any promissory note in connexion with this pol. shall be held to have been made in accordance with the table indorsed hereon; and the delivery of the promissory note, or the production of the receipt for such promissory note, shall discharge the Co. against all parties and all claims whatsoever in respect of the amount so reduced.

6. Proof of the payment of the preceding prem. may be required by the directors before issuing any promissory note in connexion with any prem. being due and tendered for payment.

7. Every promissory note so issued by the Co. may be presented at the head office of the Co., and will be redeemed 3 days after presentation, on terms indorsed thereon; the deposit of such note with the Co. shall discharge the Co. against all parties, and from all claims in connexion with such note.

8. The age of the assu. having been admitted, and all requirements by the Co. satisfactorily complied with, this pol. is indisputable. [Signatures, etc.]

This pol. is free from all conditions, save those expressed on its face. Clause 7 is intended to free the Co. from risk, "after having once redeemed a promissory note in connexion with any pol."

The holders of notes may, at their option, instead of surrendering them, receive the sum payable on the note by way of loan, for such time and at such int. as may be mut. agreed upon; and if the loan and int. be repaid, then the promissory note will remain in force. Four-fifths of the profits are to be divided every third year. "Not less than 50 p.c. of all prems. paid is invested in the names of the trustees in Consols, or other well-known Gov. securities."

The plan of this Co. appears on the whole to be more simple and complete than that of its immediate predecessor. It is now getting into active working order.

The very latest outcrop of the Consols idea is presented by the *British Guardian Ins. Co.*, which was founded in 1869, under the title of the *National Widows*. In 1872 it took its present name. It now (1873) announces Mr. E. N. Yelland as its Gen. Man.; and at the same time also announces that

50 p.c. of the prems. paid on whole L. pol. is invested in the names of trustees in Brit. Gov. securities, for which purpose there is a quarterly audit of the income account, when the board hand to the trustees one-half of the L. assu. prem. which has been received during the last quarter. The trustees, after satisfying themselves of the correctness of the amount, forward it to the brokers, who invest the money, sending the trustees the Bank of England certificate. The account is kept in a ledger specially designed for this system, and is so arranged that any pol.-holder can, at a glance, see his position in the Co.

We shall watch with a good deal of interest the future developments and modifications of the Consols system of Ins. We ought to add that in each of the preceding schemes the prems. are payable in sterling—that is, not in any way depending upon the price of Consols.

CONSOLS INSURANCE ASSO., founded in 1858, with an authorized cap. of £50,000, in shares of £1, "and such add. sum, not exceeding with the orig. cap. the sum of five million pounds, as may be determined by the shareholders."

The founder of the Co. was Mr. T. H. Baylis. The scheme of its bus. we have already fully explained in our art. **CONSOLS INS.** It is there seen that "one nominal half the amount of each person's investment must be in every case invested permanently in the Gov. Consols, in trustees' names, on behalf of the investors;" while the advantages offered to the shareholders are novel, and indeed remarkable. "The plan of the Asso. was orig. prepared by Dr. Farr, of the Reg.-General's office, . . . for the adoption of the Gov. as a national L. ins. and investment asso." In addition to the Consols plan of ins., the Co. purported to have an "enfranchisement fund for granting loans, repayable by easy instalments, and cancelled by death;" also an "accumulation fund," under which it was proposed to receive "uniform ann. deposits," and pay the accumulated amount at the end of 5, 10, 15, 20, 25, or 30 years, or "at the death of the depositor, if it happened within the stipulated time"—the amount payable in Consols.

The D. of Sett. of the Co. bears date 5th April, 1859. It recites, "And whereas at least one-fourth part of the cap. of the said Asso. has been subscribed for and by the parties hereto of the first part, and the number of shares in such cap. taken by them respectively is written opposite to their respective names and seals subs. and affixed to these presents." The bus. of the Co. was limited to L. ins., and "every other bus. which is now or from time to time hereafter may be transacted by any L. ins. or endowment co., or rev. int. co., or which is in any way connected with the duration of life." Qualification of directors, 400 shares (clause 70). There was to be inserted in every pol. or other instrument by which any ins. or endow. might be effected, or any risk undertaken by the Asso., a proviso expressly limiting the liability under any such pol. or other instrument, so that the funds and property of the Asso. for the time being remaining unappropriated and at the disposal of the directors should alone be liable to meet all claims and demands in respect of such pol. or instrument, and expressly negating any unconditional liability; and also that no shareholder of the Asso. shall be personally liable upon any such pol. or other instrument, or be bound to do anything more than pay to the Asso. the amount (if any) for the time being due from him upon his shares in the Asso. (96). No other transaction whereby any loss can be incurred by the Asso. shall be entered into with any person until he shall have signed an agreement in the words and figures following, or to the like effect:

It is hereby expressly agreed between the *Consols Ins. Asso.* and the undersigned, that in all trans-

actions with the Asso. the undersigned expressly limits his claim to the funds and property of the Asso. for the time being remaining unappropriated, and at the disposal of the directors, and that no shareholder shall be liable to contribute more than the amount for the time being unpaid on any share held by him, and that no trustee, director, shareholder, or officer of the Asso. shall incur any personal liability to the undersigned, in respect of any transaction with the Asso. (97).

The Asso. might at any time be dissolved, or amalg. or disposed of by vote of shareholders (237).

The D. of Trust for regulating the investments of the L. fund was dated 21st July, 1859. It provided for the investment of the funds in Consols, in accordance with the general plan of the scheme. Dr. Farr was appointed the first auditor, to hold office until death or resignation (clause 6). Pol. to be paid by trans. of Consols to be made by trustees upon the order of directors (8). Consols L. ins. fund not to be liable for debts or engagements of Asso. other than under L. pol. (9). Any deficiency in the Consols L. ins. fund to be made good out of the Consols capital stock. This latter fund, again, to be made good out of other capital funds and property of the Asso. So also excess of Consols L. fund to be trans. to Consols cap. stock (12). In the event of a deficiency in the Consols L. assu. fund, a statement is to be laid by trustees before the board. If such deficiency be not made good, trustees to send notice to each pol.-holder (16). General meeting to be called on any change of trustees (26). Deed might be repealed, amended, etc., by two-thirds of the directors and two-thirds of the trustees (40).

Almost immediately on its complete formation, the Co. took over the bus. of the *British, Foreign, and Colonial*, which had previously absorbed the bus. of the *Brit. Exchequer*, and had died in an attempt to acquire the *Era*.

The first audit report of Dr. Farr was pub. in April, 1861, made up to the 31st Dec., 1860. At this last date the Co. had in force 286 pol. (6 of these were accumulation pol.) ins. in Consols and sterling £77,458 12s. 2d. The prem. paid on these had been £3017 4s. 1d., and there was standing to their credit £1434 10s. in Consols. 11 pol. had been surrendered, and the deposits paid by the sale of £75 5s. 4d. Consols. One short-term pol. had expired. There was only 1 pol. of ins. in sterling, for £1450. There had been no death. This was the result of nearly two years' working, including the bus. taken over. Dr. Farr says in his report:

From the signatures to the D. of Sett. it appears that £46,593 of the cap. stock have been subs. for by 421 shareholders; and this cap. besides serving to estab. the bus., augments in the early stages the stability of the Consols L. Ins. Fund. . . . The foundation of associated inexpensive local trusts at Bristol, Bath, Newcastle-upon-Tyne, Congleton, Doncaster, and other places, by the *Consols* Asso., as well as the payment of the prem. through the local banks, appears to me to be well calculated to make the system known throughout the country, and by extending its basis to give it add. security.

We must here notice another phase in the history of this Co.—that is, the means adopted to obtain for it publicity. The cols. of the *Post Mag.* were, in the first instance, made use of largely; but the then editor was conscientious in his praise or condemnation, and he would not go the lengths required. There therefore appeared on the 18th April, 1860, the first number of a new periodical called the *Policy-Holder*. This was edited by Mr. Wm. Carpenter, who had been the founder of the *Brit., Foreign, and Colonial Life*. The pages of this pub. were almost entirely devoted to eulogising the *Consols* Ins. Asso. and its founder. In order, apparently, to draw attention to its pages, a pamph. was pub., *The Perils of Pol.-holders, and the Liabilities of Life Offices*. Violent attacks were made upon several L. cos., which became the subject of legal proceedings. In a word, very considerable attention was drawn to the *Consols* Asso. by these means, as the readers of the ins. literature of that period will remember. The *Policy-Holder* only continued in existence some six months; but its editor sustained his crusade in favour of the *Consols* Co. in various other forms. In 1862 he pub., *Perils of Policy-Holders*, Letter No. 2. This again led to considerable controversy; and certainly by these means there could have been very few persons in the U.K. to whom the features of the *Consols* Ins. Co. did not become more or less known. We refer to these incidents simply historically, as a short chapter in the hist. of this Co.

In the *Post Mag.* for 15th June, 1861, it is announced:

The plan of action adopted by this Co. appears to be to obtain the requisite amount of cap. for guarantee purposes before adopting active means for extending the pol. bus. of the offices. That the plan has been successful to an extent that could scarcely be anticipated, at a time when there has been a severe pressure in the money market, will be inferred from the fact that up to the last board meeting the deed had been signed by 438 shareholders, as holders of 47,233 shares.

The next phase in the hist. of the Co. occurred in the autumn of this same year, 1861, by reason of its assumed connexion with the *Bank of Deposit*, of which Mr. Peter Morrison was then Man. Director, and by reason of no less than 6 of the directors of that notoriously insolvent inst., including the said Man. Director, being found to be directors of the *Consols*. The pub. of this event brought forth the following explanation from Mr. Baylis, in a letter dated 29th Nov., 1861:

In the autumn of the year 1859, the preliminary arrangements were being made for launching the *Consols* Asso., and as is usual in such undertakings, it was necessary to contract a temporary loan, in order to provide funds for incidental expenses. With this object in view, a negotiation was opened with the *Bank of Deposit*, and terms were agreed upon for an advance of £5000 for a term of years, at a fair rate of int. The security agreed to be given for such advance being the debentures of the *Consols* Asso. It was further stipulated that some of the directors of the *Bank of Deposit* should join

the *Consols* board. On these conditions the loan was contracted and advanced, and the following gentlemen, being at that time (Aug., 1859) directors of the *Bank of Deposit*, were elected directors of the *Consols* board, viz.:—Mr. Peter Morrison, Dr. Clark, Major Adair, Rev. W. Bean, Mr. N. Dennys, Mr. F. Wells. These gentlemen signed the *Consols* deed for 400 shares [each], and paid up £100 each. Being thus duly qualified, they took their seats and discharged the duties of directors in a perfectly satisfactory manner, and continued to do so until recently. The loan of £5000 advanced to the *Consols* is not yet due. If it were, the Asso. is in a position to draw a cheque and pay the amount over to those legally authorized to receive it. . . .

The above-named directors all retired from the *Consols* board on the final breakdown of the *B. of Deposit*.

Before the end of this same year, some *Consols* shareholders at Bristol had taken alarm and were giving trouble; and also before the close of the year the books of the Co. were in the hands of the accountants, Messrs. Coleman, Turquand, & Youngs, for the purpose of a thorough investigation.

Readers who have become initiated in the mysteries of joint-stock enterprise will see in this "juncture of incidents" the beginning of the end. It was so. Early in Jan., 1862, a petition was presented for winding up the Co. by two of its shareholders. The petition came on for hearing before the Master of the Rolls on 19th Feb., but was adjourned from time to time, the managers of the Co. always asserting that no necessity for winding up the Asso. existed. Finally the matter was disposed of in June, by the Co. agreeing to a *voluntary winding up*.

At one of the hearings before the Court the most astounding revelations were made regarding the financial operations of the Co. It appeared that £30,000 in debentures had been issued, for which the Co. received £5000 in cash, certain L. pol. alleged to be worth £4000, and a "Scotch heritage bond." The Master of the Rolls declared that it was impossible for the Co. to go on in its then position, and the counsel who represented the various interests all concurred.

Vigorous attempts were made by some of the large shareholders in the Asso. to save it from liq. In March a committee of such shareholders met, and passed the following resolutions:

1. That the directors and the man. are entitled to the confidence of the shareholders.
2. That it will be for the manifest benefit of the shareholders that the *Consols* Asso. should be carried on, and that every shareholder should use his best exertions in advancing its bus. as much as possible.
3. That a voluntary loan of not exceeding £14,000 be made by the shareholders for the benefit of the Asso., on the security of the Scotch Heritable Bonds for £35,000 charged on the estate of Mr. Meiklam, and now belonging to the Asso., and the pol. for £9000 on the life of that gentleman, subject to the payment to the Asso., out of the proceeds of the said bonds, of the sum of £21,000 due to the Asso. on the said bonds. That the Asso. shall guar. int. on the said loan at the rate of £7 10s. p.c. p.a., being the rate of int. received by the Asso. on the amount advanced by the Asso. That all the shareholders be invited to contribute to this loan. . . .

The shareholders did not subs., and the loan was never raised.

Pending the determination of the fate of the Co., Dr. Farr had prepared his second audit report to 31st Dec. 1861. It showed that 138 pol. had been issued during the year. 3 deaths had occurred, the pol. insuring a total of £329 8s. Consols; 55 pol. had been surrendered, and the deposits in Consols amounting to £408 15s. 1d. paid; 61 pol. had been discontinued, and the Consols in deposit in respect of the same (£281 or 7d.) had not been claimed. There were therefore in force at the end of 1861, 303 policies, ins. £71,148 12s. 9d. in Consols, on which £3990 12s. 10d. had been paid in cash; and the Consols withdrawable in respect of these amounted to £2014 12s. 3d. The amount of the Consols L. fund was more than sufficient to pay these.

Finally Mr. George Scott, who had been Act. of the Asso. during its brief career—the Sec. was Mr. Alexander Colvin—was appointed official man. or liquidator of the Asso. under the supervision of the Court. The pol. existing were trans. to the *Provident Clerks'*, and a serious attempt was made to collect the assets for the benefit of a numerous list of creditors. It seems almost needless to state that the "fundamental principle of the Asso. defined by the D. of Sett., that one nominal half the amount of each person's investment must be in every case permanently invested in Gov. Consols in trustees' names," (*vide orig. prosp.*) had been entirely disregarded. Indeed, a considerable number of the shareholders had only paid 5s. per share. The uncalled cap. should therefore have been sufficient to have discharged long since all just debts, but this has not been the case.

In July, 1863, a call of £1 p. share was ordered by the Master of the Rolls—the shares were £1 only, but the Co. was unlimited. It was thought this would be sufficient to discharge the debts of £16,000—this being exclusive of the debentures issued against the Meiklam bonds, which it was proposed should be given up, on the Co. repaying the cash received, and returning the so-called securities.

A period of six years elapses, and we reach 1869. The matter of the *Consols* Co. is again before the Court—this time an alleged misconduct on the part of the official liq. He is removed from his office—his counsel says "he resigns." The report adds: There was another summons in this matter, "as to the apportionment of costs, which are said to be very heavy;" this however stands over until a new liq. be appointed.

In 1873—eleven years after winding up commenced—the Co. again crops up. The Court of Chancery is still torturing the foolish, or unfortunate, shareholders.

CONSTANTINOPLE.—The fate of this city—which was founded, A.D. 330, by Constantine the Great as the seat of the Eastern Empire—appears to alternate between outbreaks of the plague on the one hand and devastation by fire on the other. Regarding the plague, we are told that in A.D. 746 it carried off 200,000 victims. In 1611 it is reported that a like number perished. In 1720 the Levant suffered greatly. In later years cholera has from time to time declared its presence with great severity.

Regarding conflagrations, our information is confined to the last and the present century. The following is the most complete return we are able to compile :

1729—12,000 houses burned, together with 7000 inhabitants.

1745—A fire lasted 5 days—extent of damage not recorded.

1749—12,000 houses destroyed.

1750—Nearly 10,000 more houses consumed.

1751—Nearly 4000 houses were burned.

1756—Two fires—first about 500 houses burned ; and in July, 15,000 houses, and 100 inhabitants destroyed.

1761 to 1771—Four or five fires, doing great destruction during this period.

1778—2000 houses were burned.

1782—Three fires : Feb. 600 houses ; June, 7000 ; August, 10,000 houses, 50 mosques, and 100 cornmills, etc., were destroyed.

1784—10,000 houses were burned.

1791—Between March and July of this year it is said 32,000 houses were burned !

1792—7000 houses were destroyed.

1795—A similar amount of destruction.

1799—The suburbs of Pera had 1300 houses, including many magnificent buildings, destroyed.

1826—6000 houses destroyed.

1865—A fire originated in a small two-storey building, and thence spreading, whole streets, squares, and mosques were destroyed, as well as the Gov. buildings.

About 2800 houses were destroyed, and about 22,000 people left without homes !

1872—July, a fire destroyed about 1000 houses.

We are told that the arrangements for fire protection in this city are very primitive. There are two fire towers on the highest points on each side of the Golden Horn. One of these is an old Genoese fortification in Galata ; the other is a Turkish structure, soaring several hundred feet above the water. In the galleries of these towers watchmen walk day and night, spy-glass in hand. On the discovery of a fire, a red ball is hoisted in the daytime, and a red lantern at night, on a flagstaff above ; and the big guns on the top of Fire Hill on the Bosphorus announce its existence to the dwellers in the suburbs. Meantime from the watch-tower issue forth messengers, carrying a short pike of authority. These run through the crowded streets, yelling to clear the way, carrying to the police-stations and the engine-houses the name of the quarter ; at each station fresh men take up the race, and in half an hour the most distant police-station in the city can tell you where the fire is. The fire cos. come forth and carry their engines—little boxes 2 feet square—on their shoulders, the hose on their backs. With these they rush through the streets, yelling like demons. Arrived at the fire, they deposit the engine on the ground, water-carriers bring the water in great leathern bottles, and the pumps work lively and throw a very respectable stream. When the fire gets so near the engines as to be uncomfortable, they haul off a little further, and so steadily retreat before it, fighting every inch of ground. Often at a great fire you may see the grand vizier himself and other cabinet officers on the ground. The flame leaps all streets without hesitation, now whirls aloft from the taper minaret of some doomed mosque, now stoops to lick up some dingy hovel—a poor man's all. And still the engines gradually fall back before it, helpless. At length the wind dies out, the raging element stumbles at some high wall, and with all efforts cannot leap it. Elsewhere, one of the great gardens, so numerous in Constantinople, has checked it. And now the hook and ladder cos. appear, tear down a house or two, more or less remote from the scene, and the fire is done ; and yet (says the *Ins. Agent*) F. ins. cos. do a thriving business in such a place. As is natural, the people think they do all they can to put out fires. "If a steam fire engine were presented to the Turkish Government of this city to-day, they would let it rust out rather than use it."

After the great fire of 1865, an order went forth that no more houses were to be built of wood—hence there may yet be some hope for the city.

Many travellers who visit Constantinople consider that a fire, instead of being a scourge, should be regarded as a real blessing, as in some sort purifying one of the "plague spots" of Europe. [PLAGUE.]

Marshall, writing in 1832 of the *plague*, says :

The term *plague* or pest is so familiar to all acquainted with the geography and hist. of the Levant, Asia Minor, and Constantinople, as to render a recurrence to those parts of the world inseparable from a remembrance of the disease in question ; and to treat of the latter to the extent to which it has there prevailed, it would be necessary to give an annuary of their mort. for the last 5 centuries. It appears during such a period down to the present time, to have been what it was in England from 1593 to 1740, *that is, never extinct, and occasionally manifesting itself with unusual violence.*

CONSTITUTION (from the Latin *constitutio*, to set or put together).—This is a term which has many significations. We shall only follow these so far as they relate to our subject.

Thus: the act of constituting; formation. State of being; peculiar structure; state of all the organs of the body. A body of fundamental laws, as contained in written documents, or estab. by prescriptive usage, which constitute the form of Gov. for a nation, state, community, asso. or so., as the *Brit. Constitution*; constitution of *ins. asso.*, etc. The *constitution of the body*, or diathesis, denotes the particular condition of the body, comprising the "propria," or peculiarities, as distinguished from the "communia," or generalities. These we shall speak of under HUMAN CONSTITUTION. The *constitution of the air* denotes that peculiar state of the air which induces epidemics, or impresses upon epidemic or sporadic diseases their peculiar character or particular occasions, and was designated by Sydenham as "bilious," "dysenteric," etc. This we shall speak of under EPIDEMIC CONSTITUTIONS. The *Constitutions of Ins. Asso.* are mainly regulated by the laws from time to time in force for governing or restricting joint-stock enterprise. This subject will be treated of under INS ASSO., CONSTITUTION OF.

CONSTITUTION, EPIDEMIC.—See EPIDEMIC CONSTITUTION.

CONSTITUTION, LEGAL.—See INS. ASSO., CONSTITUTION OF.

CONSTITUTION LIFE ASSU. ASSO., founded in 1856, with an authorized cap. of £500,000, in 100,000 shares of £5. "Int., exclusive of parti. in 10 p.c. surplus profits, guar. by D. of Sett. at the rate of 5 p.c. p.a." The founder of the co. was Mr. Francis Norton Erith, who became its Act. and Man., assisted by Mr. John White Oram, who became a director, and "Gen. Man. of Metropolitan and Provincial Agency Departments." The prosp. announced as the distinguishing feature of the co.: "*The progress of life assu. developed in the principle of sustentation; or, a provision for the prevention of pol. from lapse.*" It further said:

The progress of L. assu. throughout the U.K., within the last quarter of a century, strikingly evidences its appreciation by the public. Exhibiting a moral elevation of principle, uniting so many and varied interests under the oneness of co-operation, L. assu. stands foremost among the most laudable exercises of civilization, and the best evidences of improvement in social economy. It is confidently affirmed that sos. based upon sound principles, revealing breadth of management, through the power of sufficient cap., evidencing the purest principle of mutuality of int. and united government, are neither too many nor too numerous as affecting the individual growth and prosperity of each.

Again:

The successes of well-estab. modern offices—and the statistics of the number of persons assured and not assured—afford the completest evidence that the supply does not exceed the demand. The system of L. assu. is capable of the mightiest extension in the application of its principles, and therefore it is that a wise economy, without narrowness, and a judicious expenditure, without extravagance, command prosperity.

The *Constitution Life Assu. Asso.* is promoted by experience, and a just sense of the importance of well and honourably founded institutions in their commercial and relative bearings upon society. Possessing its characteristics, keeping pace with the demands of intelligence, and the requirements of the age, it aspires to confidence on the foundation of its integrity—the range of its intentions—and the amplitude of its capital.

Ninety p.c. of the profits of the asso. were to be "periodically applied to parti. pol.-holders." Male and female share-, and pol.-holders (of £100 and upwards) were to be allowed to vote at all gen. and quarterly meetings of the asso. "Uniting the true principle of mut. assu. with the positive security and guar. of the joint-stock system, the stability of the asso. is at once estab." The prosp. further says:

It is provided by the Asso.'s D. of Sett. that there shall be pub. periodically, an investigation bal.-sheet, the valuations being made on the strictest principles. Ann. bal.-sheets, as ordinarily pub., do not show the real condition of a co.'s affairs; and the public remain therefore uninformed on a subject which cannot be too explicitly shown.

A board of hon. directors, resident in various parts of the U.K., for the purpose of extending the influence and power of the Asso. The introduction of a clause in the D. of Sett., enabling such board at any time to be formally constituted, by a vote of members duly convened, into a council of reference or court of arbitration upon any disputed point involving the rights of members, gives add. security to the assured and shareholder, and imparts confidence to every officer of the Asso.

Four members ann. elected auditors of the Asso., who shall lay the accounts before the gen. courts, being assisted in their examination by their consulting auditor.

The "sustentation" feature is developed as follows:

A peculiar and all-important advantage is offered to the assured in this Asso., at their own option, by a provision for the prevention of pol. from lapse. This valuable desideratum is rendered immediate in case of need, by tables specially calculated upon the best data to meet the contingency; and as this provision does not require that any given number of consecutive years' prem. shall have been paid before its benefit can be enjoyed, a boon of almost inappreciable worth is conferred upon the holders of policies when so protected. It is questionable if, after a few years, any one will hold a pol. of ins. unless guarded by the principle of Sustentation, as exemplified in this So. Without such a guar. against pecuniary casualties and reverse, L. assurance can never be universally appreciated.

No new appropriation of profits in any co. will long continue to be estimated by the public as of material worth, while the security is wanting which can alone make L. assu. a social and domestic duty. Experience can testify to the numbers that are deterred from assuring, through the dread of temporary inability to preserve their pols. from lapse. Moreover, it should be observed that the lapsing or discontinuance of pols. acts prejudicially on the accumulation of cap.; and upon purely commercial grounds, therefore, the great importance of the principle is apparent. Its application to circumstances as they may arise in this Asso. will be carefully administered; and any wilful misrepresentation or other fraud will vitiate the pol., and render all prem. paid upon it forfeit to the So.

Rates of prem. were calculated with and without "sustentation"—the former being about 5 p.c. higher than the latter.

The co. undertook to ins. *Defective Titles*—"thus assisting the trans. or sale of

property that would otherwise be unmarketable"; also the redemption of *Leaseholds, Lifeholds, and Mortgages*; and to discharge rev. for immediate annu. Accident assu. and railway passengers' accident assu. granted. "Under T. specially computed, the directors will grant pol. not simply guar. compensation in the event of accident, and a fixed sum at death arising from accidental causes only, but connecting ordin. L. assu. with this highly important and extending branch of bus."

There was yet another batch of "advantages": Half-credit premis., Industrial Ins., Deposit Ins. "One life exchanged for another of equal or different value by arrangement." Protective assu. and whole-world licenses granted. Assu. against *sickness, paralysis, blindness, insanity, and accident*. "The D. of Sett. gives to the assu. in Scotland all the advantages offered by the Scotch offices; and by the alliance of the two systems, it is believed that a large and extensive bus. will accrue to this Asso." "Claims settled in the Colonies or at home." The cap. was to be returned to the shareholders "out of a fund created from the reservation of one-tenth of the surplus profits, as soon as the same shall double the subs. cap." Special T. had been prepared for ins. lives in the Colonies, and the East and West Indies.

The Asso. in fact became as it were smothered in the plethora of advantages it offered. Its man. did not know which branch to push first. Finally, after a lingering existence of about twelve months, it died out. The few pol. it had issued were taken over by the *Emperor L.* in 1857.

CONSTITUTIONAL.—Inherent or bred in the constitution of the body or the mind; exercise for health; consistent with the fundamental laws.—*Worcester*.

CONSTITUTIONAL DISEASES.—These rank as Class II. in the Reg.-General's classification of the causes of death. They are divided into two orders—*Diathetic* and *Tubercular*; these again are subdivided into nine minor divisions. Dr. Farr says:

These diseases have this in common with zymotic diseases, that they are diffusive; they work changes in several parts of the organism, and it has recently been shown by Villemin [*Gazette Hebdomadaire*, 1865, p. 795] that human tubercle is, even when introduced by inoculation, capable of inducing tubercular deposits in the organs of animals. These experiments have been repeated, and the results are decisive. 28th Rep.

Again:

Constitutional diseases are of variable and uncertain seat. They are characterized by the production of matters, not its natural constituents, from the elements of the body, which they deteriorate or destroy. *Cancer* is a type. . . . Mortification occurs still later in life, and is more fatal to men than to women. The *Tubercular* order occurs in some of its forms in early childhood. Then supervenes hydrocephalus, with tubercles on the brain and its membranes; or *tabes mesenterica*, with similar deposits in the mesenteric glands; or *scrofula*, with deposits in the bones and the integumentary system. Phthisis is the most fatal not only of this order, but of all the forms of disease. It is especially the disease of youth and early manhood.

This latter subject will be followed up under CONSUMPTION.

Dr. Farr says in 33rd R. of Reg.-Gen.—returns for 1870—under "Constitutional Diseases":

These are very fatal forms of disease, by which the health of the pop. is greatly impaired; they are of long duration, and in their attacks very fatal; Cancer and Consumption are the typical forms of the two orders of this class, which was fatal to 88,766 in the year. It is the class of diseases especially attaching to men and women in their prime, eating up their full lives, as the canker eats the rose.

It was not the practice in the early days of life ins. to make specific inquiries regarding "Constitutional Disorders." A general declaration that the person proposing to be insured was in good health at the time of the ins. being granted was all that was required. This state of matters continued down to about 1780, when, in consequence of the numerous cases which had come before the Courts, of fraud or concealment in some form in relation to life ins., the practice of demanding more specific information became general. It has gone on now in this more exact form for nearly a century; and on the whole the more modern system works better than the more lax system of former times. [CONCEALMENT.] [GOOD HEALTH.] [LIFE INS. PROPOSALS.]

CONSTITUTIONAL DISEASES, DEATHS FROM.—The number of ann. deaths in this class in England varies but slightly, increasing with the pop. In 1858 they were 82,416; 1859, 81,788; 1860, 82,088; 1861, 84,987; 1862, 83,024; 1863, 84,393; 1864, 87,190; 1865, 88,504; 1866, 89,907; 1867, 89,423. For 15 years ending 1864, the average ann. deaths of this class to each 1 million living was 4368.

The deaths of 1867 were thus divided—males, 42,960; females, 46,463. Of the males 4490 died under 1 year and 9187 under 5; 1421 between 5 and 10; 3922 between 20 and 25; 4648 between 45 and 55; 2392 between 65 and 75; and 2 over 95. Of the females 3496 died under 1 year and 7687 under 5 years; 1307 between 5 and 10; 4394 between 20 and 25; 4880 between 45 and 55; 2814 between 65 and 75; and 15 over 95.

CONSTITUTUM LEGIS ET CONSTITUTUM USUS.—The two statutes of Pisa, enacted respectively 1156 and 1160; the latter containing important rules of maritime law, which are quoted in this work.

CONSTRUCTION OF INS. CONTRACTS.—Where there is ambiguity in the terms of a pol. of ins., the maxim *verba chartarum fortius accipiuntur contra proferentem* (the words of an instrument shall be taken most strongly against the party employing them) applies as a rule of construction. This was specifically so held in the case of *Notman v. Anchor Ins. Co.* in 1858.

In the case of *Tierney v. Etherington*, 1743, Chief Justice Lee is reported to have said: "It is certain that in construction of pol., the *strictum jus*, or *apex juris*, is not to be laid hold on, but they are to be construed largely for the benefit of trade, and for the ins."

In the case of *Jefferies v. Legandra*, tried in the reign of William & Mary, and cited by *Style*, it was held,—A pol. of ins. is but a parol contract, and must be construed according to the minds of the parties, and not according to the strict sense of the words. This ruling we shall see has since been modified.

Lord St. Leonards, in the case of *Anderson v. Fitzgerald* (United Kingdom L.), 1853, said: "The Courts, observing how very often cos. of this nature have been subjected to frauds, will carefully guard them against fraud, and will give effect to any part of the contract which has this object. Nay, more, it is from the very advice given in the Courts of Law that the cos. have endeavoured to protect themselves, by those stringent provisions which we so usually find in pol. of ins. But, however severe the terms, there should be no ambiguity upon the instrument itself."

Arnould, writing upon the construction of pol. of marine ins. (3rd ed. 1866), says:

The principles which govern the construction of sea-pol. do not vary from those applicable to all other mercantile instruments. The language of sea-pol. is frequently indeterminate, ambiguous, or technical. When this is so, parol evidence, as in the case of other contracts, is admissible to explain it. The language of sea-pol. is frequently incomplete as an expression of the meaning of the parties, because it is employed, and is understood so to be, with reference to the usages of trade. In this latter class of cases (and they are very numerous), the meaning of the contract embodied in a sea-pol., even where the language of the pol. is on the face of it unambiguous, may, nay must, be explained by parol evidence of those usages, a knowledge of which in such cases forms the only available key to the real intention of the parties.

In these cases "the question," says Lord Mansfield, "is, whether the usage has not explained the generality of the words. If it has, every man who contracts under a usage does it as if the point of usage were inserted in the contract in terms." The notion, however, which appears at one time to have prevailed (favoured unquestionably by certain reported expressions of the earlier Judges), that sea-pol. were not amenable to the rules of construction generally applicable to all other mercantile contracts, but were to be interpreted so as to carry out the assumed intentions of the parties, even though repugnant to the terms in which their intentions purported to be expressed on the face of the instrument, must now be regarded as erroneous. *Parol evidence, whether of usage or otherwise, can in no case be admitted to contradict or materially vary the plain and express terms of a sea-pol.*

The same rule may now be said to apply to all other branches of ins. bus.

Mr. Bunyon, in his *Law of Fire Ins.*, 1867, gives the following summary of the modern ruling in construction of ins. contracts:

In arriving at the meaning of any particular clause or expression, due weight must be given to the context, and if there has been any proposal in writing to the Co. for the ins. referred to in it, to the terms of that proposal, which may control or enlarge the words of the pol. itself; and of course the conditions will affect and modify the terms used in the body of the pol. It will be observed that it is the province of the Court to decide questions of construction, and thence as to the effect of the contract between the parties, although when a question arises as to the meaning of any particular term of a technical kind, or requiring the explanation of mercantile usage, on such points the jury must decide, and the Court will construe the pol. accordingly.

Further, it is a rule that where the written part of the pol. is inconsistent with the printed conditions, the former must prevail, inasmuch as the written words are the immediate language and terms selected by the parties themselves for the expression of their meaning, and the printed words are a general formula, adapted equally to their case and that of all other contracting parties upon similar occasions and subjects; but if possible a construction will be adopted which will reconcile both.

In the U.S., where, as we have elsewhere said, the contract of ins. is regarded with much more strictness than is usually the case in the U.K.,—that is to say, where the offices stand much more upon their strict legal rights,—there has been a series of most instructive decisions, some of which we proceed to notice.

In construing a pol., a particular description, which is clearly false, will be rejected in order to give effect to other descriptive words, when such words are sufficient to define the building intended to be described. In such a case the false description may be rejected as surplusage.—*Heath v. Franklin Ins. Co.*, 1848.

Where a pol. provided that "if the assu. or his assigns shall hereafter make any other ins.," etc.:—*Held*, that the word "assigns" referred only to one who had acquired an int. in the property ins., and had the pol. assigned to him, with the consent of the Co.—*Holbrook v. American Ins. Co.*, 1852.

Where the by-laws prohibited the ins. from altering the building, and provided against any increase of risk, by the act of ins.:—*Held*, that the words "insured" and "assured" applied to the party whose interest was orig. ins., and not to a lessee under him, nor to a party to whom, in case of loss, the pol. was made payable.—*Sandford v. Mechanics Mut. Fire Ins. Co. (Mass.)*, 1853.

In application for ins., in reply to questions as to distance of other buildings ins., "house and woodhouse connected. No other buildings within four rods except the ice-house." It appeared in evidence that in the rear of the ice-house was a small building, 3½ feet high in rear, and 6 feet high in front, divided by a partition of boards, and called a "hog-house" and "hen-house":—*Held*, that they were not buildings within the meaning of the application, and evidence as to the increase of risk from them was not competent.—*White v. Mutual Fire Assu. Co. (Mass.)*, 1857.

A pol. of ins., in respect to the rules by which it is to be construed, and the principles

by which it is to be governed, *does not differ from other mercantile contracts*. It is a contract of indemnity, and the right to that indemnity, vested by the contract, can be taken away only on principles alike applicable to other instruments of that character.—*Miller v. Western Farmers Ins. Co.* (Ohio), 1854.

An indorsement on a pol., of receipt of an add. prem. for "carpenter's risk," in extending a store-room adjacent to the building in which the property ins. was situated, cannot be construed into an engagement to ins. goods in the extended store-room, although a portion of the building orig. ins. was removed, and its place occupied by the extended store-room.—*Lycoming County Ins. Co. v. Updegraff* (Penn.), 1861.

The law of the relation between insurers and the assured is the pol. of ins., with all its clauses, conditions, and stipulations, by which their mutual rights and liabilities are defined and measured.—*West Branch Ins. Co. v. Helfenstein* (Penn.), 1861.

Where a pol. is entirely consistent with the terms of the application, free from ambiguity, and susceptible of a consistent construction in all its parts, although there be a mistake in the ins. effected not attributable to the insurers, the Court will not look beyond the terms of the pol. in ascertaining its meaning and legal effect.—*Baltimore Fire Ins. Co., v. Loney* (Ma.), 1862.

For a proper understanding of the rights and obligations of the parties to an ins. effected by a mut. ins. co., the charter of the co., a pol. issued by it, and the conditions annexed thereto, must be read together.—*Hyatt v. Wait* (N.Y.), 1862.

A vote by the directors of an ins. co., indefinitely to postpone the subject of a loss, will be construed as a refusal to allow anything on account of it.—*Patrick v. Farmers Ins. Co.* (N.H.), 1862.

A clause in a pol. of ins., that it should "cease at and from the time the property hereby ins. shall be levied on or taken into possession or custody under any proceeding at law or equity," is to be construed as meaning an actual levy and change of possession under it. A mere notice of levy by the officer charged therewith, to the defendants at their store, without his taking the goods ins. into possession or custody, though good as a levy, will not defeat the pol.—*Commonwealth Ins. Co. v. Berger* (Penn.), 1862. So in the case of *Philadelphia F. and L. Ins. Co. v. Mills* (Penn.), 1863—a wrongful levy would not apply to such a condition.

Ambiguous words in a pol. of ins. may be construed by extrinsic evidence of accompanying circumstances, and the usages of the bus. in which property ins. was employed. *New York Belting and Packing Co. v. Washington F. Ins. Co.* (N.Y.), 1863.

A clause in a F. pol. which provided that if gunpowder or other articles subject to legal restrictions should be kept in greater quantities or in a different manner than was provided by law, the pol. should be void :—*Held*, to have reference only to articles of an intrinsically dangerous nature, as liable to cause injury accidentally or by carelessness, and not to refer to liquors, the traffic in which was made illegal by statute.—*Niagara F. Ins. Co. v. De Graff* (Mich.), 1863.

Conditions and provisos in pol. of ins. are to be construed strictly against the underwriters, as they tend to narrow the range and limit the force of the principal obligation.—*Hoffman v. Etna F. Ins. Co.* (N.Y.), 1865.

Pol. of ins. are to be considered and construed as a whole, and particular clauses or passages are not to be wrested from their context, so as to destroy the unity of the contract, and create conflict where there should be agreement; but one part is to be elucidated by the other, so as to reconcile them, if practicable, to one common intent or design, present to the minds of the contracting parties.—*Merchants Ins. Co. v. Edmond* (Va.), 1866.

Where the underwriters have left their design doubtful by using obscure language, the construction will be *most unfavourable to them*.—*Merrick v. Germania F. Ins. Co.* (Penn.), 1867.

CONSTRUCTION OF MORT. TABLES.—See MORT. TABLES, CONSTRUCTION OF.

CONSTRUCTIVE (from the Spanish *constructivo*).—In law, a matter of interpretation; something not expressed, but inferred; as constructive trust, constructive treason, CONSTRUCTIVE TOTAL LOSS, etc.

CONSTRUCTIVE TOTAL LOSS.—This term is used in the law of *Marine Ins.* to denote a loss which entitles the assured to claim the whole amount of his ins., on giving to the insurers notice of abandonment. Generally there is a constructive total loss when the subject-matter insured has not actually perished, or lost its form or species, but has, by one of the perils insured against, been reduced to such a state, or placed in such a position, as to make its total destruction, though not inevitable, yet highly imminent, or its ultimate arrival under the terms of the pol., though not utterly hopeless, yet exceedingly doubtful. In such a case the assured, by giving notice within a reasonable time to the assurers of *abandonment*, i.e. the relinquishment of all his right to whatever may be saved, is entitled to recover against them for a total loss.—*Arnould*.

In the 1st vol. of *Assu. Mag.* is a very interesting paper by Mr. Manley Hopkins, *On the Doctrine of Constructive Total Loss*.

The considerations attaching to this subject occupy a very wide range. We can only deal with it in outline here.

A constructive total loss takes place when it may reasonably be construed or inferred from the disadvantageous circumstances in which property is placed, that it cannot be rescued from absolute total loss by any endeavour to repair the ship or continue the adventure, unless at a cost greater than the value of the property would become in the event of such expenditure being incurred. In illustration of this species of loss, we may refer to the common case of a vessel condemned and sold on account of her having sustained injuries so extensive that she is not worth the cost of repairs; or to the case of cargo landed at an intermediate port in such a sea-damaged condition, that if re-shipped and forwarded to its orig. destination, it would become entirely worthless before arrival. — *McArthur*.

We now note a few of the more recent cases.

In an action on a marine pol. for a constructive total loss, the defendant is entitled to an inspection of all papers in the possession of the plaintiff relative to the matters in issue, including letters between the captain and the plaintiff. — *Raynor v. Ritson*, 1865.

The case of *Klingender v. Home and Colonial Assu. Co.*, in the Court of Exchequer, 1866, was an action on a pol. as for a total loss of freight, to be earned in carrying a cargo of coals from Rio to San Francisco. On the voyage the ship received damage from heavy seas, which compelled her to put into Monte Video, having previously, for safety's sake, thrown overboard some portion of her cargo, and landed another portion at the Falkland Islands. On the ship being surveyed at Monte Video, she was found to be incapable of pursuing the voyage with the cargo on board, and no other vessel could be found to take the cargo on. The cost of warehouse-room was so great at Monte Video, that in a few months it would have equalled the value of the cargo; and owing to the town being in a state of siege and political revolution, it was unsafe to land the cargo and leave it unwarehoused. Under these circumstances, the captain, being in want of money, sold the cargo, and applied the proceeds to the ship's purposes, and afterwards brought her back in ballast to Liverpool for repairs. At the trial the Judge left two questions to the jury—1. Was there a constructive total loss of the ship? 2. Was there a constructive total loss of the goods? The jury answered both questions in the negative:—*Held*, that there was no misdirection, and that the two questions submitted to the jury were, under the circumstances, proper for the determination of the case.

The rule is, that to entitle the insured to recover upon the pol., the loss must be the direct and immediate consequence of the peril ins. against, and not a remote one.

It appears to be a condition of constructive total loss, that notice must be given to the underwriters within a "reasonable time." Thus, in the case of *Potter v. Rankin*, 1868, an owner of a vessel chartered to sail from Glasgow to New Zealand with cargo, and there discharge; thence to proceed to Calcutta and load cargo, and therewith proceed to Lond.; effected a pol. on the chartered freight from Calcutta to Lond., to attach only during the preliminary voyage to New Zealand. The vessel received injuries in its voyage to New Zealand, which would have justified abandonment or sale, but neither took place within a reasonable time, and the owner partially repaired the vessel at New Zealand, and sailed it to Calcutta. No notice of the abandonment of freight was given within a reasonable time:—*Held*, that there was neither an actual nor a constructive total loss of the freight. [ABANDONMENT.] [CAPTURE.]

CONSUL.—An officer appointed by competent authority to reside in foreign countries, to facilitate and extend the commerce carried on between the subjects of the country which appoints him and those of the country or place in which he is to reside. The office appears to have originated in Italy, about the middle of the 12th century, and was generally estab. all over Europe in the 16th century. [CONSULAR COURTS.]

British Consuls were formerly appointed by the Crown, upon the recommendation of great trading cos., or of merchants engaged in trade with a particular country and place. But they are now directly appointed by Gov., without requiring any such recommendation. The right of sending Consuls to reside in foreign countries depends either upon a tacit or express convention.

The office of "Conservator," created by an Act of the Scotch Parl. in 1503, appears analogous to that of the Brit. Consul.

Among the varied duties of British Consuls is that of claiming and recovering all wrecks, cables, and anchors belonging to British ships, found at sea by fishermen or other persons; to pay the usual salvage, and to communicate a report thereof to the Navy Board. — *McCulloch's Com. Dict.*

The Consuls and Vice-Consuls of Gt. Brit. are by enactment of 1806 (46 Geo. III. c. 98, s. 9) empowered to administer oaths in all cases respecting quarantine, in like manner as if they were magistrates of the several towns and places where they respectively reside. [QUARANTINE.] It is also laid down that a Consul is to attend, if requested, all arbitrations where property is concerned, between masters of British ships and the freighters, being inhabitants of the place where he resides. Consuls estab. in England have no judicial power.

In *Tikey*, and in *Alexandria*, English Consuls enjoy several peculiar privileges: among them that of holding *Consular Courts*. This right is conferred by ancient treaties, confirmed by that signed at the Dardanelles in 1809, wherein it is stipulated and agreed

upon—That if there happen any suit or other difference or dispute among the English themselves, the decision thereof shall be left to their own Ambassador or Consul, according to their custom, without the judge or other governors intermeddling therein. The Brit. Consular jurisdiction in Turkey is now regulated by Orders in Council.

In *China* Consular jurisdiction was estab. in 1845, after the first Chinese war; and is administered by a Consul General, subject (in certain cases) to the interposition of the Supreme Court of Hong-Kong.

The earliest notice as to Foreign Consuls exercising any control in regard to English commerce occurs in 1347, and is thus stated in Anderson's *Hist. of Commerce*: "In consequence of an application by the Consul of the *Venetian* merchants at Bruges, and an English merchant, the King now took all the merchants of Venice now trading in England, Ireland, and his other dominions, under his protection during one year."

CONSULAGE.—A duty or tax paid by merchants for the protection of their commerce in a foreign place.

CONSULAR COURTS are tribunals associated with the history of commerce in the Mediterranean. The first record we now have of them dates from A.D. 1162, when the Emperor Frederick, among other things, gave permission to the Genoese to have one or more of their citizens reside in every country to which they traded, *in order to dispense justice according to his laws and good custom!*

In 1283 Peter III. (the successor of James I.) created consular jurisdiction in Valencia, and he authorized these judges to pronounce: *inter homines maris et mercatores, juxta consuetudinem maris, prout est in Barchinona, fieri consuetum.*

In 1343 there were regulations for the procedure of these Courts; and one of such regulations was that the Consuls should judge after the written rules of the sea. [**CONSULATO DEL MARE.**]

During the 14th century the decision of maritime disputes was separated from the ordinary jurisdiction, and special courts of the "Consuls of the Sea" were instituted by the King of Arragon at Barcelona, and in Valencia. They afterwards extended to Venice, Pisa, Genoa, etc. Ultimately, Courts of Appeal from the sentences pronounced by these Consuls were established; and thus their jurisdiction became tolerated.

The origin of English Consular Courts in the East appears to date from 1485. We fall back upon *Anderson*, who considers it "pretty certainly the first appointment of a consul for the merchants of England in any of the countries within the Mediterranean."

As some English merchants intended to trade to foreign countries, and especially Italy, with their own chartered vessels and their merchandize, King Richard, observing from the practice of other nations the advantage of having a magistrate appointed for settling disputes among them, and also understanding that the city of Pisa was most convenient for the residence of English merchants, he, at the request of the merchants trading, or intending to trade, to Pisa and the adjacent countries, appointed Lorenzo Strozzi, a merchant of Florence, to be Consul of the English merchants in those countries, and delegating to him the power of hearing and summarily determining all disputes between English subjects in those parts, and doing all other things pertaining to the office of a Consul.

The Ins. Ordin. of Philip II. of Spain, promulgated 1556, contains the following passage:

1. We ordain and command that all underwriters of risks to and from the Indies, who declare that they sign for another person, either by virtue of his power or commission, shall first show the powers or commissions to the *Prior and Consuls*, that they may examine their validity, and if found sufficient, give the underwriters leave to sign; but they shall not grant this license if the powers or commissions are not satisfactory, and to their liking; and he that signs without shall incur a penalty of 20,000 maravedis, half for our Chamber, and half for the charges of the *Consulado* [Consular Court]; and authentic copies of the powers that shall be approved before a notary of the *Contratacion* House, or one of the *Consulado*, shall remain in the Consulado, according to custom.

Magens, reviewing this passage [in 1755], says:

It is known that ins. in those times were mostly practised at *Antwerp*, where the greatest number of wealthy merchants then resided, who, on shipping goods to foreign markets, used to send their own supercargoes or agents, furnished with letters of attorney, to act on behalf of their principals; and some might often be empowered to insure for their constituents' account, and others not; for which reason it seems this law prescribed that the powers should be lodged in, and approved of by, the Consular Court.

The Consular jurisdiction (which has descended to the present time), of one country over its merchants residing in another, has of late years caused much dissatisfaction; but it is difficult to see how, in the interests of Brit. commerce, Consular Courts can be suddenly abolished.

CONSULES MARIS.—A title which we owe to the Latinity of the Middle Ages, and by which the Judges of the Consular Courts were, in the 13th century, designated. In the 14th century the title of *Tractatores Mercantie* appears to have been substituted; and in the 15th century *Officium Mercantie*.

CONSULS OF THE SEA.—Judges of the Consular Courts estab. in the 14th century. [**CONSULAR COURTS.**]

CONSUMMATION OF CONTRACT.—Some very nice questions have from time to time occurred regarding the completion or otherwise of contracts of Ins. It is of the utmost importance alike to the office and the insured to understand when the contract may be regarded as complete. We shall endeavour to illustrate this by means of a few cases—chiefly from the U.S.

In the case of *Christie v. North British Ins. Co.*, before the Courts of Scotland in 1825, the circumstances were as follow: S., desirous to insure his wire-mill, applied for

£2000 in the *Phoenix* through an agent at Edinburgh, and for £3000 in the *North British Co.* The agent of the *Phoenix*, not knowing what prem. to charge, referred to the man. in Lond.; and the officers of the other co. told S. that they would take the risk, and charge the same prem. as the *Phoenix*, and that S. might consider his mill insured. The risk was entered in their books, with a blank left for prem. The fire occurred before any conclusion was come to as to the prem. to be charged:—*Held*, by a divided Court, that the contract was incomplete, and that S. could not recover.

Where an agreement for ins. had been made on the 30th of March, and the prem. paid on that day, but the pol. was not made out until some days afterwards, and in the mean time the property was destroyed; but the pol., dated the same day as the prem. had been paid, was made out and delivered:—*Held*, that the pol. took effect by relation from the day of its date.—*Lightbody v. North American Ins. Co. (N.Y.)*, 1840.

Where a co. offered by letter to insure on certain terms, and the insured replied accepting the terms and inclosing the prem., the contract was *held* to be consummated from date of mailing the acceptance, though property was destroyed before receipt of the same by the Co.—*Taylor v. Merchants Fire Ins. Co. (U.S.)*, 1850.

After the approval of the application, and the payment or security of the prem., the applicant is insured, and can recover for his loss, although no pol. may have been made out.—*Goodall v. New England Mut. Fire (N.H.)*, 1852.

A pol. was made out at the request of defendant, but he refused to receive it, or pay prem., or sign note:—*Held*, that there was no contract and no liability, and in action on prem. note against defendant the Co. could not recover.—*Real Estate Mut. Ins. Co. v. Roeste (Mass.)*, 1854.

A contract arises when an overt act is done, intended to signify an acceptance of a proposition, whether such overt act comes to the knowledge of the proposer or not; and unless a proposition is withdrawn, it is considered as pending until accepted or rejected, provided the answer is given in reasonable time. The acceptance of a proposal to insure for the prem. offered is the completion of the negotiation; and after the pol. has been forwarded to the agent of the Co. for delivery, the contract cannot be rescinded without the consent of the party insured.—*Hallock v. Commercial Ins. Co. (N.J.)*, 1856.

Where insured and his counsel, after a loss by fire, applied to the Sec. of the Co. for the pol., and he stated "that he had either sent the pol. to the insured by mail, or by private hand; he thought by the mail:"—*Held*, that such declaration was conclusive evidence against the Co., upon the question of the execution and legal delivery of the instrument; and they could not, upon the trial, repudiate the representation of their Sec.—*Sussex County Mut. Ins. Co. v. Woodruff (N.J.)*, 1857.

Where an agreement of ins. was made between the parties by their agents on the 20th, and on the night of the same day the property was destroyed by fire; on the morning of the 21st the pol. was executed, delivered, and received in perfect accordance with the agreement, both parties being ignorant of the fire:—*Held*, to be a valid and binding contract. [COMMENCEMENT OF RISK.] [CONDITIONS OF INS.] [PREMIUMS.]

CONSUMPTION (from the Lat. *consumo*, I waste away).—Emaciation, or wasting away of the body. This term is commonly applied to a diseased state of the lungs, attended by debility, cough, hectic fever, and purulent expectoration. It may be produced by a variety of causes; but hereditary disposition and scrofulous habit are leading causes which predispose to its most alarming form, namely, that which arises from tubercles in the lungs—hence *Tubercular Consumption*; or sometimes *Pulmonary Tubercle*. Consumption is also termed *Phthisis pulmonalis*; and mesenteric consumption *Marasmus*. It is sometimes also designated *Decline*. In the early B. of Mort. it is usually designated *Tissick*—a corruption of *Phthisic*.

There is no disease which afflicts humanity in which the L. offices are more deeply concerned; hence we propose to treat the subject exhaustively—except that we shall not mention purely scientific medical treatises, whose name is legion.

It is certain that phthisis was known to the ancient Greeks. Hippocrates says "that the autumn is obnoxious to consumptive persons," to which Galen adds, in his commentary on this passage, "if it be dry, cold, and unequal." (See Haviland, *On Climate*, 1855, p. 18.)

In 1802 Dr. William Heberden, Sen., M.D., pub., *Commentaries on the Hist. and Cure of Diseases*, wherein, under "*Phthisis Pulmonum*," is an art. from which we draw the following:

A consumption appears by the Lond. B. of Mort. to be in that city the most destructive of all maladies to adults; 1 in 4 of those that grow up to manhood being reported to be carried off by this distemper. But all these cases must not be charged to the account of pulmonary consumption: because, whoever decline and waste away by any obscure, unnamed distemper, they are all charged to this article, though the lungs be not at all diseased. . . . A consumption is a distemper which is most certainly derived from the parents, and yet rarely makes its appearance before puberty; between which and the age of 30 is the time of the greatest danger. . . . In England we have very little apprehensions of the contagious nature of consumptions, of which in other countries they are fully persuaded.

Either this learned author, or his equally learned son, wrote further upon the subject; for we observe in Dr. Guy's *Public Health* (p. 21) the following passage:—"Heberden

considered that Consumption was on the increase during all the last century. In his T. he renders it accountable for 3000 deaths at the beginning, 4000 in the middle, and 5000 at the end of the 18th century."

In 1808 Dr. William Woolcombe, of Plymouth, pub. *Remarks on Different Diseases, particularly on the Increase of Consumption and the Influence of the Seasons on Mort.* He calculated that the ann. mort. in England from C. alone amounted at that time to 55,000 persons!

In 1815 Dr. Thomas Young, M.D., pub. *Practical and Historical Treatise on Consumptive Diseases.* He sets out with this remark :—"Consumption is in almost all civilized countries the most extensively and inevitably fatal of diseases." Again :

The frequency of consumption in Gt. Brit. is usually such that it carries off one-fourth of its inhabitants; at Paris the mort. of consumption has been estimated at one-fifth, and at Vienna it is said to be one-sixth of the whole. But the mort. of Paris, and in the South of France, from consumption, have frequently amounted to one-fourth of the whole.

Dr. Young, however, wrote at a time when the name of phthisis or pulmonary consumption was extended to other pulmonary affections than those which have classed thereunder since the works of M. Laennec, Sir James Clark, and Dr. Lombard.

In 1821 there was pub. an English ed. of M. Laennec's great work [orig. pub. 1819], *Treatise on the Diseases of the Chest, their Anatomical Characters, and Diagnosis by means of Acoustic Instruments*; translated with Notes by John Forbes [2nd ed., with notes and life, 1827]. This work led to a more exact discrimination regarding, and classification of, chest diseases.

Mr. Marshall, in his *Mort. of the Metropolis*, pub. 1832, reviewing the causes of death as shown in the B. of Mort. during a period of 204 years, 1629-1831, says :—"Consumption, which forms so prominent a feature in the catalogue of diseases, may be regarded as remarkable for its uniformity, and more particularly if so viewed in relation to *Asthma* and *Phthisis*, with which it is blended from 1690 to 1700, and 1729 to 1739. Under CONSUMPTION, DEATHS FROM, we shall present to our readers the statistics which Mr. Marshall had before him.

In 1834 the mort. experience of the *Equitable* So. was pub. Out of a total of 4095 deaths which had occurred from 1 Jan. 1801 to 31st Dec. 1832, 339 were attributed to C. Of these 4 occurred between the ages 10-20; 23 between 20-30; 63 between 30-40; 83 between 40-50; 81 between 50-60; 66 between 60-70; 18 between 70-80; and 1 above 80. This gives 24.5 p.c. for the age 41-50; 24 p.c. for the age 51-60; and 25 p.c. above 60—that is 73.5 p.c. after 40, and 49 p.c. after 50. Prof. Christison, reviewing these figures in 1853, says :—"Great errors must have crept into the data supplying such results." The reasons which induced the learned Professor to take this view will appear when we come to review his labours (see 1853).

In 1835 Sir James Clark pub., *Treatise on Pulmonary Consumption, and Inquiry into Tuberculous and Scrofulous Diseases in General.* This work created much attention. The author furnishes the following estimate of the proportions of deaths from C. for the 121 years ending 1821 :—

For the year	1700	{ The deaths from C. were to }	'145
		all the deaths of the year }	
"	1700 to 1750	" "	'214
"	1750 to 1801	" "	'263
"	1801 to 1811	" "	'288
"	1811 to 1821	" "	'316

General average for the 121 years, '245 or 1 in 4

and he added at the date of writing (1835), "It now appears to constitute $\frac{1}{4}$ of the whole mort."

Sir James illustrates in various ways the influence of sex and age in the production of phthisis. Thus, in chapter 8, T. are given exhibiting the mort. from phthisis in persons above 15, in 7 cities in Europe and America, which show that in each city there is a pretty uniform decline in the ratio of deaths from phthisis from 20 years to extreme age (as has already been pointed out); and the facts furnished by the excepted city, Berlin, were at least a century old when used, having been furnished by Sussmilch. In Edin. the ratio was found to decline from .285 at 20 years, to .052 above 60 years; at Nottingham from .416 to .017 in the same period of time; Chester, from .245 to .054; at Carlisle, from .290 to .097; and at Paris, according to Louis, from .325 to .042; while the general average decline was from .285, or 28.5 p.c. at 20-30, to .078, or 7.80 p.c. above 60.

De Morgan, in his *Essay on Probabilities*, pub. 1838, says :

The experience of any one individual might lead him to say that it is no uncommon thing for three or four times as many persons to die of Consumption in one period of five years as in the previous period; but the experience of one large city will show that such is not the case. The B. of Mort. in Lond. showed the following results : the upper line denoting the last year of the 5 in question, and the lower line, the average number in every 1000 deaths which were caused by Consumption, or what was called such :

1732	1737	1742	1747	1752	1757
135	163	165	180	187	197

There is nothing like enormous fluctuation. The gradual increase of the number shows an increasing tendency to the complaints then described under the head Consumption, but cannot be called fluctuation, being itself regular.

The learned Professor overlooked the effect of increase of pop.

In 1838 there appeared in the *Statist. Journ.* [vol. i., p. 142], an extract from the Croonian Lectures of Dr. John Clendinning, M.D., *On the Relative Frequency of Pulmonary Consumption and Diseases of the Heart*, wherein is given the following:

Between May, 1821, and May, 1835, there have been recorded in the journals of the Marylebone Infirmary, under 18 principal heads of disease, 3753 deaths, exclusive of about 640 deaths from minor causes. Of the total, amounting to nearly 4400 deaths, 991 (viz. 542 males and 449 females) were deaths from phthisis (and mostly in the larger sense of the word, as used by Dr. Young), which gives a per-centage of 22½ on the whole mort. of the 14 years.

He adds, "For my part, I have no doubt at all that the greater part of the so-called consumptions in persons above 30 years of age has been, in reality, mere chronic catarrh, complicated with disease of the heart, and emphysema of the lungs." In support of this view he gives the annexed T., compiled by his brother, Dr. G. Clendinning: Of 1044 deaths from phthisis occurring in the workhouse and infirmary, jointly, of the parish of Marylebone, between May, 1821, and Dec., 1835, the distribution according to age was as follows:

	No. of deaths from Phthisis.	Per-centage proportion of each year.
Under 5 years.	70	8.33
From 5 to 10	17	
" 10 " 20	52	5.08
" 20 " 30	247	23.66
" 30 " 40	223	21.36
" 40 " 50	164	15.71
" 50 " 60	121	11.59
" 60 " 70	97	9.29
" 70 " 80	45	4.31
" 80 " 90	7	0.67
Totals ...	1044	100.0

He says further:

According then to the above, and Sir James Clark's T., the distribution of phthisis according to age is nearly such as I have stated, viz. phthisis declines in frequency soon after puberty, and has been comparatively rare in middle life; when it is for the most part superseded, as I conceive, in frequency and fatality, by *morbus cordis*; and in extreme age it has disappeared altogether.

In 1838 Captain A. M. Tulloch read a paper before the Statist. Soc. of Lond., *On the Sickness and Mort. among the Troops in the West Indies*, prepared from Official Documents. In part i. of this paper, embracing what is technically called the "windward and leeward command," out of 9975 cases of "diseases of lungs," admitted into hospital in 20 years, 1023 are attributed to *Consumption*, and of this number admitted, 580, or more than one-half, died. The author says, "Not only is Consumption productive of great mort. in this command, but inflammation of the lungs and chronic catarrh are nearly twice as prevalent, and twice as fatal, as among troops in Brit., thus showing how little effect a mere increase of temperature has in modifying these diseases." In part ii. of the paper, embracing the "Jamaica command," out of a total of 4357 cases of diseases of the lungs treated in hospital during a period of 20 years, 661 were returned as C., and of these 315, or nearly one-half, died. The author says:

As an instance how much more prevalent Consumption is in this country than in Gt. Brit., it may be stated that out of an aggregate strength of 51,567 serving in Jamaica, 661 have been treated for that disease, being 13 p. 1000 ann.; while of 44,611 Dragoon Guards and Dragoons in the U.K., only 286 have been treated, or between 5 and 6 p. 1000 ann. This is the more remarkable as catarrhal affections and inflammations of the lungs are much less common than in this country.

In 1837 M. H. C. Lombard pub. in Strasbourg, *Recherches Anatomiques sur l'Emphyseme Pulmonaire*; and in 1839, at Geneva, *Téatologie: Cas d'oblitération presque Complète de l'Artère Pulmonaire*. These works became speedily known in Gt. Brit., and have attracted much attention. The writer found, from inquiries made at Geneva, that one of the principal causes tending to produce phthisis was the inhalation of air in which mineral and other dusts were floating. He showed that among polishers, sculptors, stone-cutters, plasterers, watch-hand makers, and others of that class, the proportion of consumptive complaints was 177 in 1000—the general average number of such cases in all the professions in Geneva combined being 114. But yet he considered, on the whole, "that the influences which modify the *system in general*, such as a sedentary life, etc., etc., are more active in the production of phthisis than those acting *locally* upon the lungs, as dust, vapours, etc.; and if we reflect that the *latter* agents are never present independently of the former, their *real* activity, as causes of pulmonary tubercles, is at best but problematical." He showed that of 1000 deaths from C., the following causes contributed in the relative proportions named in the figure col.:

Occupations with vegetable and mineral emanations	176	Sudden movements of arms	116
Occupations with various dusts	145	Muscular exercise and active life	89
Sedentary life	140	Exercise of the voice	75
Workshop life	138	Living in the open air	73
Hot and dry air	127	Animal emanations	60
Stooping posture	122	Occupations with watery vapour	53

The order of the respective fatality of "dusts" he found to be as follows: 1 mineral; 2 animal; 3 vegetable.

In 1839 there was prepared by Captain [now Major] Tulloch, a Report, *On the Sickness and Mort. among the Troops in the U.K.* From an abstract of this document, prepared by Mr. J. W. C. Lever, and read before the Statis. So. in 1839 [vol. ii., p. 250], we draw the following details. The mort. of the Foot Guards during a period of 74 years under obs. was found to be 21·60 p. 1000, or nearly one-half higher than among the Dragoon Guards and Dragoons. The paper says :—"The principal diseases to which this high ratio of mort. is attributable are diseases of the lungs, amounting to 14·1 p. 1000 of the mean strength; whereas the mort. from diseases of the lungs among the Dragoon Guards and Dragoons amounts only to 7·7 p. 1000 of the mean strength. The ratio of deaths from all other diseases, or causes of death, is 7·5 p. 1000 in the Foot Guards, and 7·6 p. 1000 in the Dragoon Guards and Dragoons." It was shown that this high ratio of mort. did not arise from residence in the metropolis. Passing to the mort. of the combined troops, we find, under "Diseases of the Lungs," the following :

If the mort. in the Foot Guards, which must be considered an exception, be excluded from the comparison, the loss in the other corps by this class of diseases approximates so nearly that there is little difficulty in fixing an average :

	Per 1000 of strength.
In the Dragoon Guards and Dragoons it amounts ann. to	7·7
Household Cavalry	8·1
West India Depôts	9·6
Foot Guards	21·6

As some part of the excess in the West India depôts may prob. be attributable to the climate of the West Indies, which has a much greater tendency to produce Consumption than that of this country, we may assume that the average mort. from diseases of the lungs throughout our army, exclusive of the Foot Guards, is about 8 p. 1000 ann. . . . Of the fatal cases of disease of the lungs, nearly four-fifths arise from Consumption, being as many as from all other causes of the army at home. The highest estimates in civil life rate the mort. from this disease at one-seventh of the deaths at all ages; or, if the obs. be confined to adults alone, it may possibly amount to one-fourth part, which, at the utmost, is only half as high as among the troops.

We now reach a period from which the obs. on C., as indeed on all other diseases and causes of death, are destined to become the subject of much more exact and systematic investigation. In 1837 the Gen. Regis. Act came into operation. In 1839 the first Rep. of the Reg.-Gen. was pub. Dr. Farr's letters on the causes of death constitute a feature in these Reports, and from these we shall now have frequent occasion to quote. The attention of this learned man was speedily drawn to the subject of Consumption. In the first Rep. he tells us Consumption and Decline carried off more females than males, "in the ratio of 4·135 to 3·771." In the 2nd Rep. we find the following :

The higher mort. of English women by C. may be ascribed partly to the indoor life they lead, and partly to the compression, preventing the expansion of the chest, by costume. In both ways they are deprived of free draughts of vital air, and the altered blood deposits tuberculous matter with a fatal, unnatural facility. 31,090 English women died in one year of this incurable malady! Will not this impressive fact induce persons of rank and influence to set their countrywomen right in the article of dress, and lead them to abandon a practice which disfigures the body, strangles the chest, produces nervous or other disorders, and has an unquestionable tendency to implant an incurable hectic malady in the frame? Girls have no more need of artificial bones and bandages than boys.

There are in this same Rep., under "Diseases of Towns and of the open Country," some remarkable facts regarding the effect of density of pop. upon certain diseases. We give an abstract of so much of the T. as relates to C.

Groups of 10 districts each.	Density.	Ann. rate of Mort. per 100,000 living.	
	Square Yards to each Person.	From Phthisis.	Other diseases of the Respiratory Organs.
No. 1.	180	375	659
" 2.	119	405	771
" 3.	35	485	914

It is here seen that in the districts with the least density, the deaths from C. were 375, and in those of most density 485 to 100,000 living; while other lung diseases caused 914 deaths in the most dense, against 659 in the least dense districts, out of the same numbers living.

It was further shown that in the entire metropolis, with a density of 26,900 persons to the square mile, and a pop. of 1,885,000, the deaths from Consumption and other diseases of the respiratory organs were 14,288; while in the counties of Cornwall, Devon, Somerset, and Wilts, with a density of 219 persons p. sq. mile, and a pop. of 1,743,000, the deaths from the same diseases were 8664. It is well known that in Cornwall—one of the 5 counties here named—an excessive mort. prevails among the miners. [MINERS, MORT. OF.]

In the 3rd Rep. of Reg.-Gen., embodying returns for 1839, Dr. Farr says :

At the adult age, when Consumption chiefly prevails, the numbers of men and women living are nearly equal, yet 31,453 females and 28,106 males died of this disease. The ann. rate of mort. by Consumption was—males '003722, females '004015; in 1838 it was—males '003783, females '004077, denoting a slight decrease, which was more obvious in other diseases of the class.

In this Report, also, the mort. from different diseases in Lond. and 24 other city districts with an aggregate pop. of 3,769,000, was contrasted with the mort. from the same diseases

in counties containing a pop. of 3,559,000, chiefly engaged in agriculture. Dr. Farr says hereon :

The tendency to Consumption was increased 24 p.c., to typhus 55 p.c. in the town districts; but as the absolute mort. from Consumption is three times as great as from typhus in towns, and nearly four times (373) as great in the country, the excess of deaths by C., caused by the insalubrity of towns, is greater than the excess of deaths by typhus—a fact which has hitherto been overlooked. Thus 24,094 deaths from C. occurred in the country, 32,436 in the town districts: the excess amounted to 8342 deaths.

These facts have an important bearing upon considerations which will occur later in this art. (see 1858).

In 1841 Major Tulloch read before the Statistical So. a paper: *Comparison of the Sickness, Mort., and prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports* [vol. iv. p. 1]. Under "Diseases of the Lungs," is given the following table :

	NAVAL FORCE.		MILITARY FORCE.	
	Out of an aggregate strength of 55,709.		Out of an aggregate strength of 62,300.	
	Attacked.	Died.	Attacked.	Died.
Inflammation of Lungs and Pleurisy	1742	54	1667	71
Spitting of Blood.....	147	3	171	7
Consumption	285	105	417	272
Catarrhs	11,237	12	6586	52
Asthma and difficulty of breathing.	103	3	112	3
Total.....	13,514	177	8953	405
Ann. Ratio p. 1000 of mean strength ...	243	3.2	144	6.5

Upon this the following obs. are offered :

The attacks by this class of diseases have been nearly twice as numerous among the naval as among the military force employed in the Mediterranean, *but the mort. has been only half as great.* On investigating, however, the different forms of disease comprehended under this head, it will be found that inflammation of the lungs, pleurisy, spitting of blood, asthma, and difficulty of breathing, prevail to almost precisely the same extent in both services; and that the difference consists principally in catarrhal affections and *consumption*. Of the former nearly double the proportion have come under treatment in the naval force, but not a fourth part so many cases have terminated fatally, owing, it is believed, to a greater facility for invaliding those in whom this disease assumes a chronic or serious form. To the same circumstance is prob. to be attributed the smaller proportion of consumptive cases in the navy, in which only 5.1 p. 1000 have come under treatment ann., while among the military the proportion was 6.70 p. 1000. Even the former ratio, however, is sufficient to show that the climate of the Mediterranean is far from exerting any decided influence in retarding the development of consumption, when persons are constitutionally predisposed to it; since the proportion attached of the naval force there is quite as large as among the civil pop. at home.

It will perhaps be deemed a remarkable feature of the preceding T. that only about one-third of the consumptive cases among the sailors appear to have terminated fatally; but so many were sent home and lost sight of after their arrival, that the deaths inserted in the returns can by no means be assumed as a correct measure of the ultimate consequences of this disease. The author of the naval report most justly observes that "if all were genuine cases of phthisis, the mort. must unquestionably have been much greater than what is stated in the returns."

There seems, however, little doubt that either the sea air or the excitement produced by the voyage do sometimes operate very materially in alleviating the symptoms of this disease. Many soldiers sent home from Malta, with the apparent symptoms of confirmed phthisis, have arrived in this country in renovated health, and speedily returned to their duty; and so marked has been the improvement in several instances, that within the last year increased facilities have, at the special request of the medical officers, been afforded for sending home invalids of this class. Thus, while the faculty in this country are sending their consumptive patients to Malta, the medical officers in that island are sending soldiers labouring under the same disease to England; and *as benefit is supposed to be derived from the change in both cases, it seems much more likely to arise from the influence of the voyage than mere change of residence, especially as the proportion of deaths among those labouring under consumption is remarkably low on ship-board.*

Mr. Wilde, in his Rep. on the causes of death in Ireland in connexion with the Census of 1841, informs us that C. is by far the most fatal affection to which the inhabitants of Ireland are subject—being to the deaths from all causes 1 in 8.75.

In the Appendix to the 5th R. of Reg.-Gen., relating to the returns for 1841 [pub. 1843], Dr. Farr gives much interesting information regarding C. He says (p. 370):

Diseases of the respiratory organs were fatal to 92,183 persons in 1841. The mort. which they occasioned was nearly 6 in 1000 [of the living]; it was 59.1 in a million, or 132 less than in 1840, when 6043 in a million died of pulmonary affections. Of the decrease of 132 to a million, 55 was in pneumonia, and 75 in phthisis. The mort. by these two diseases remained, nevertheless, excessively high.

	1838	1839	1840	1841
<i>Pneumonia</i> :—				
Total Deaths	17,919	18,151	18,582	17,997
Deaths to a million living	1219	1200	1209	1154
<i>Phthisis</i> :—				
Total Deaths	59,025	59,559	59,923	59,592
Deaths to a million living	3996	3939	3,897	3822
<i>Other Diseases of the Respiratory Organs</i> :—				
Total Deaths	13,799	12,855	14,402	14,594
Deaths to a million living	934	850	937	935

The learned author says: "*Hitherto medicine has been able to effect little for the cure of confirmed phthisis, although there can be no doubt that attacks are ward off and that life is prolonged by change of air, regimen, and the judicious administration of remedies.*"

In the same vol. Dr. Farr found (according to the then returns) that of 30,878 males alive in the metropolis at the age of *twenty*, 2779 died in the subsequent ten years, and of these no less than 1438 by phthisis. The danger of dying by phthisis in the ten years he expressed by the fraction $\cdot 047$; thus of the 1000 alive at the beginning of any year of age from 20 to 30, about 4·7 die in the year following; from the age of 30 to 40 nearly 5·3 in 1000 die; and from the age of 40 to 50 the danger from Consumption is greatest, for 6·6 in 1000 men die of the disease ann. The mort. from the malady increases 1·75 p.c. annually—19 p.c. every 10 years of life—from the age of 20 to 50.

It was shown that the death-rate from C. and other diseases of the respiratory organs was 782 in towns, against 522 in country districts, to each 100,000 living.

Finally, we are told, "*The lives of consumptive persons, although shorter, are regulated by laws as constant as those which are observed in persons dying of other diseases;*" and admitting that the applicant (for ins.) will ultimately die of C.—but is not at the moment labouring under the disease—"he need not be deprived of the advantages of ins.: for his chance of living can be determined and the risk calculated." Then from a T. prepared for the purpose of showing the mort. of various diseases, and which we give under DISEASED LIVES, Dr. Farr deduced the following:

Age.	Life Table applicable to Males who die of Consumption.		Expectation of Life in the Metropolis.	
	Living.	Dying.	Of persons who die of Consumption.	Of all Males.
0	8297	1199	35	35
10	7098	554	30	44
20	6544	1438	23	36
30	5106	1498	17	29
40	3608	1611	13	22
50	1997	1321	...	...
60	676	576	...	...
70	100	100	...	...

In 1842 there was read before the Brit. Asso. at its Meeting at Manchester, a paper by Mr. D. Noble, Surgeon, Manchester, *On the Influence of the Factory System on the Development of Pulmonary Consumption*. The author says:

I propose in the present paper to examine, in the first place, to what extent the positive results obtained by the Reg.-Gen. confirm the idea that C. is more frequent in this manufacturing town of Manchester than in other places; these results I shall compare with corresponding ones gathered from other large towns, where little or no manufacturing prevails; and I shall then subjoin some statistical data obtained by myself from an examination, in conjunction with Mr. Ner Gardiner, the Sup.-Reg. of the district, of the reg. books of the township of Manchester, for a period of 3 years—data which will contribute in some degree to satisfy the inquiry as to the proportion which the cases of C. occurring in this place, amongst persons of various pursuits, bear to those happening to the factory pop.

The writer proceeds to state that he draws his numerical comparisons from 3rd Rep. of Reg.-Gen., but on comparing the results with the preceding Rep. there is a "remarkable accordance in all the main results." According to the Census of 1831, the number of families resident in Manchester was 49,392; while the families in Essex were 62,403. The deaths regis. in Manchester in 1839 from C. were 1454. The deaths in Essex same year from same cause, 1201, or 250 less in the larger pop. This, he admits, taken by itself, furnishes a decided evidence of the prevalence of the disease in the former district; but then he points out that that is a town district compared with a country or rural district, and that therefore many material causes differ. He then proceeds to compare Manchester and Salford with West Derby, a district of Liverpool, wherein the deaths from C. in the same year were 1762 in a smaller pop. He next takes Birmingham, where the result is slightly more favourable than in Manchester. Lond. furnishes a smaller proportion of deaths from C. in relation to its pop. than either of the places named. He proceeds:

These numerical statements, of unquestionable authenticity, drawn from the national records, of the causes of death in various parts of the kingdom, supply, certainly, no corroboration of the views that have been set forth of the extraordinary prevalence of C. in the manufacturing districts, as compared with other districts free from manufactories. Manchester and Salford seem, on the whole, rather more exempt from the disease than some other places; decidedly more so than Liverpool; but in comparison with the agricultural districts, and the metropolis, more subject to its prevalence. It is a remarkable fact however that, the metropolis excepted, Manchester has fewer deaths from C., in proportion to the whole number of deaths, than any of the other districts above instanced; and contrasted with the metropolis in this respect, the ratio is the same. *So far we look in vain for evidence of the baleful influence of the factory system in developing and causing the increase of the disease in question.*

Further investigations led him to believe that the factory pop. did not furnish any undue proportion of the deaths from C. in Manchester.

In 1843 Dr. Wm. A. Guy read before the Statistical So. a paper: *Contributions to a*

Knowledge of the Influence of Employments upon Health. The materials upon which the paper was based were obtained from the Regis. of the out-patients of King's College Hospital. The details are of considerable interest, but we must content ourselves here with the following summary of the results deduced, as set forth by the learned author of the paper :

1. In females the ratio of cases of pulmonary C. to those of all other diseases is highest in those following sedentary employments; less in those having mixed in-door occupations; and *least of all in those employed out of doors.* The highest ratio occurs in the case of females whose habits of life are irregular.

2. In men the ratio of cases of pulmonary C. to those of all other diseases is somewhat higher in those following in-door occupations than in those working in the open air.

3. The ratio of cases of pulmonary C. to those of all other diseases, in the case of men following in-door employments, varies inversely as the amount of exertion, being highest where there is least exertion, and lowest in employments requiring strong exercise.

4. Neither a constrained posture, nor exposure in a high temperature, nor a moist atmosphere, appears to have any marked effect in promoting pulmonary C.

5. The ratio of cases of pulmonary C. to those of all other diseases is highest in the case of men whose employments expose them to the inhalation of dust, there being in persons so employed 2 cases of C. for less than 3 of all other diseases.

6. The ratio is also high in the case of persons exposed to habits of *intemperance*, there being 2 cases of pulmonary C. to 5 of all other diseases.

7. The age at which pulmonary C. makes its attack varies with the employment, being earlier in those occupations characterized by a high ratio of consumptive cases. Thus it is earlier in those following in-door occupations than in those employed in the open air, and in those using little exertion than in those using much. It also occurs very early in those exposed to the temptation of intemperance, and in those whose occupations lead them to the inhalation of dust.

In a further paper by the same author on the same subject, which also appears in vol. vi. of the *Statistical Journ.*, there occurs the following passage :

How many thousand unnecessary victims pulmonary C. claims year by year it is impossible to ascertain; whether this chronic plague is more or less destructive than the kindred pestilence which is constantly snatching away so many of our adult pop. must remain a subject of conjecture; but of this there can be no reasonable doubt, that in add. to those who might have escaped C. and reached at least the borders of old age, a large proportion of all who die of that disease, die much earlier than they would if they had been placed in more favourable circumstances. As each unnecessary death from C. represents the loss, after a slow and lingering illness, of one of those who form the real strength of society, so the death of each father of a family, at an age when those who depend upon him for support are most helpless, is the source of an amount of private suffering and privation, and oftentimes of expense to the public, which is much more readily conceived than estimated. To complete the calculation of the cost to society in this one disease alone, which results from unwholesome influences admitting of removal, it would be necessary to add the hereditary taint transmitted from the consumptive parent, and ready at fitting season to cut short the life of the child after he, in his turn, has bequeathed the same sad legacy to his offspring. Thus it happens that the seeds of disease are more thickly sown with each new generation, and a race of men famed for strength and vigour is doomed to slow but sure degeneracy.

In 1844 Dr. Guy presented to the Statis. So., *A Third Contribution to a Knowledge of the Influence of Employments upon Health.* The returns now presented were mainly deduced from the Reports of the Reg.-Gen., and the immediate object of the author was to ascertain whether the several classes of society—the gentry, tradesmen, and working men—were equally liable to pulmonary C.? “The answer to this question will lead to a consideration of the causes of the unequal prevalence of the disease among the three classes; and this will suggest a further inquiry as to the actual amount of pulmonary C. in this country, and will originate an attempt to determine the actual waste of human life due to this cause.” The following T. embodies the main results arrived at:

Condition.	15 to 20	21 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	under 30	under 40	Average age at Death.	Ratio	No. of Deaths.	
												C.	Other Diseases.
Gentlemen, etc.	10'84	18'67	27'11	19'27	15'06	6'03	3'01	29'51	56'62	39	1 to 5'00	166	835
Tradesmen, etc.	8'46	24'34	26'98	20'11	12'70	6'35	1'06	32'80	59'78	38	1 to 2'60	189	491
Artizans, etc.	7'25	23'69	26'24	22'79	13'34	6'26	0'43	30'94	57'18	38½	1 to 2'29	2318	5308

The ratios of death from Consumption follow the same order as the average age at death, being lowest where the average age is highest, and the reverse. Thus the average age at death of the class of gentlemen is 58'61, and the ratio of deaths from C. is 1 to 5; in the case of the tradesmen the average age is 48'84, and the ratio of deaths from C. 1 to 2'60; while in the class of artizans the average age is 48'06, and the proportion of deaths from C. 1 to 2'29.

Again, the class of gentry presents a smaller proportional number of deaths under 30 and 40 than either of the other classes. It is also well worthy of obs. that the per-centage proportion of deaths from C. under 30 and 40 is higher in the class of tradesmen than in that of the artizan and labourer, although the ratio of cases of C. is greater in the latter class. This is doubtless accounted for by the fact already estab. that the strong exertion which a considerable portion of the labouring class employed within doors use in their occupations, and the large number employed out of doors, has the effect of retarding the attack of pulmonary C. . . . The tradesman, it will be seen, occupies the intermediate place between the in-door and the out-door labourer, between the artizan using little exertion and the artizan using much exertion. . . .

Another point attracts attention in T. IV. [the table just given], viz. the great proportion of deaths from C. occurring in the class of gentry from 15 to 20 years of age. Does not this show that the liability to the disease is greater in this class than in the two others; and does it not tend to strengthen the position, that the excess of the deaths from C. in the other classes is due to the unfavourable circumstances in which they are placed?

The ratio of deaths from C. in the class of gentry, low as it is, would have been still lower if the medical men who are included in it were omitted. The number of cases of pulmonary C. occurring

in members of that profession is very remarkable, and it is a subject of regret with the author that they were not made a separate class.

The author then proceeds to estimate the number of cases of pulmonary C. occurring ann. in the metropolis, and in E. and W. In the former he found them to be 5560—or about *one-eighth* of the deaths of all ages, and rather less than *one-fourth* of the deaths above 15 years of age. In E. and W. he found the deaths to be about 36,000 p.a., “being rather less than *one-ninth* of the mort. from all causes at all ages, and 1 in less than 6 of the total deaths occurring above 15 years of age.” This estimate, which was less than the returns in R. of the Reg.-Gen., Dr. Guy considered to be only an approximation.

Many of the points treated of by Dr. Guy will be more particularly mentioned under OCCUPATION, INFLUENCE OF.

In 1844 Dr. Guy completed a laborious investigation into the health of letterpress printers and of others following in-door occupations. He says:—“This inquiry taught me that a great saving might be confidently looked for in an unexpected quarter.” That out of 36,000 deaths a year in E. and W., which he attributed to true pulmonary C., 5000 might be saved by increased space and improved ventilation in ships, workshops, and factories; that among men doing the same work under the same roof, the liability to C. was determined by the space; and that this might be narrowed to a point at which men would die as fast as by some contagious malady; so that here, as in Italy, C. *might seem to pass from one person to another.*

In 1845 the deaths of males in Lond. from C. were 3624, of whom 2599 were above 20 years of age; and of these latter 21·3 p.c. were between 41 and 50 inclusive, 10·6 p.c. between 51 and 60, and 4·2 p.c. above 60; that is, 36 p.c. in all after 40, and even 15 p.c. after 50. These, it has been remarked, are large proportions, especially if compared with the existing total pop. above those ages, which is, of course, considerably less than at earlier periods of life.

In 1847 Dr. James Begbie, Medical Examiner for the *Scottish Widows' Fund*, pub. in the *Monthly Journ. of Medical Science*, an account of causes of death in that so. for the first 30 years of its existence. Subsequent reports have been pub. by the same learned authority; and we shall speak of the general and combined results of these obs. under other dates: especially under 1868. The total deaths up to the close of 1845 had been 642, of which 72, or about 11 p.c., arose from C.

In the first 20 years' mort. experience of the *Clergy Mut.*, founded 1829, the deaths from C. bore rather a large proportion to the entire deaths of the So. We are told, in the medical hist. of the So., that the 16 phthisical cases represent a total of 104 years 8 months of life, which only gives an average duration of 6½ years to each pol. “The average of 23 cases is substantially the same.” It is not uninteresting to extract these deaths from the general T., and place side by side the duration of the policy and the age at death.

One only of these deaths occurred below 30; 9 between 30 and 40; 5 between 40 and 50; one at the end of the sixth decennial period.

In the year 1850, Dr. Farr tells us, “The deaths from phthisis (consumption) were fewer than usual (46,614), but amounted to more than the deaths from any other disease, and to 1 in 8, or 13 p.c., of the deaths from all causes. To every 1000 of the pop. 2·6 die every year of C.”

In 11 years prior to Oct., 1850, there occurred in the Royal Infirmary of Edin. 852 cases of death, recognized as cases of C., among the male patients. Of these 715 were above 20 years of age. Of the latter, 17·8 p.c. were between 41 and 50, 5·6 p.c. between

51 and 60, and 2·4 p.c. above 60: that is, 25·8 p.c. in all were above 40, and 8 p.c. above 50. The deaths from the same cause in both sexes yielded almost entirely the same results. Of 698 deaths, 611 were above 20; and of these 17 p.c. were between 41 and 50, 5·5 p.c. between 51 and 60; and 2·3 p.c. above 60: that is, 24·8 in all were above 40, and 7·8 p.c. above 50.

In the 14th R. of Reg.-Gen.—returns for 1851—Dr. Farr tells us:

The respiratory organs were affected by diseases which were fatal in 48,759 cases: 17,294 of bronchitis, 22,001 of pneumonia, and 4866 of asthma. This aggregate constitutes 12·55 in 100 of the specified deaths, or nearly the same proportion of the total deaths as the deaths by diseases of the nervous system. If phthisis (consumption), which, however, is a disease that affects the intestines as well as the lungs, is added to the diseases of this order, it doubles the aggregate: for the deaths from that disease are as numerous as the deaths from all the diseases of the respiratory organs. 25 in 100 deaths are caused by C., and by the diseases of the respiratory organs.

CASES OF PHTHISIS.

Duration of Policy.		Age at death.	
Years.	Months.	Years.	Months.
1	0	30	5
3	4	40	0
9	11	59	11
0	10	48	9
10	7	39	10
10	5	40	5
9	2	36	9
13	0	32	10
9	11	48	8
4	2	27	10
5	3	30	5
2	3	36	1
2	2	30	11
7	11	47	10
8	5	32	4
6	4	34	3

Dr. Guy prepared the following T., showing the deaths from C. in 1000 males and 1000 females of the pop. of E. and W. and of Lond. respectively, living in 1851, at decennial ages :

Ages.	Males.		Females.	
	England.	London.	England.	London.
15 to 25	3.18	2.96	3.85	2.46
25 „ 35	4.03	4.81	4.55	3.58
35 „ 45	4.08	6.34	4.14	4.45
45 „ 55	3.95	6.47	3.18	3.29
55 „ 65	3.55	5.07	2.68	2.64
65 & upwards	2.20	3.62	1.51	2.45

In the 15th R. of Reg.-Gen.—returns of 1852—Dr. Farr says : “ *Consumption is the greatest, the most constant, and the most dreadful of the diseases that afflict mankind. It is the cause of nearly half the deaths that happen between the ages of 15 and 35 years, and during one year was fatal in 50,594 cases !* ”

In 1853 there was pub. *An Investigation of the Deaths in the Standard Life Assu. Co.*, by Prof. Robert Christison, M.D., etc., etc. The results of this investigation extended over the 5 years ending 1850. Of 293 deaths during that period 29 were referred to C., which the learned author says is, “of all single diseases, the most important in relation to life assu.” The deaths from this cause were 10 p.c. of the whole, and “the proportion would evidently have been greater, certainly not under 12 p.c., were it not for the unusual add. to the mort. of the quinquennium from epidemic fever and malignant cholera.” On the 29 lives 32 pol. had been granted :

The number of years which the assured lives survived acceptance conjunctly is 159 on the 32 assu. The conjunct exp. of life was 947 years. Hence each individual outlived acceptance 5 years as an average, instead of fully 29—that is, a *sixth part* only of his exp. of life. Only one attained so much as two-thirds of his expectation term ; 2 others outlived a third part, but did not reach one-half of it ; and 3 others approached the third of it ; but the rest were far behind. *It follows that Consumption must be principally fatal at early periods of assurance life ; and, accordingly, of the 29 deaths, 1 fell between 20 and 30, 16 between 30 and 40, 4 between 40 and 50, 6 between 50 and 60, and 2 after 60.* Hence 17 deaths took place under 40 years of age, and no fewer than 21 under 50. It is easy to see from these particulars how serious a source of loss Consumption has proved. It is of moment, therefore, to inquire whether the loss can be lessened for the future.

In this view he enters into a detailed scrutiny of the causes of death from C. We can only note a few of the many interesting features he discusses :

In the first place, there can be no doubt that much greater loss has been saved by the vigilance of the directors and their officers in avoiding consumptive risks. From the mort. returns of Lond. in 1845, it appears that 9629 males above 30 years of age died of all diseases, and 1689 of Consumption—that is 17½ p.c. Therefore, if it be fair to assume that a great proportion of assurances are effected by males above 30, and also that the prevalence of C. in Lond. corresponds pretty nearly with its general prevalence among persons who effect assu. throughout the U.K. at large, it will follow that the 293 deaths from all causes, during the experience of this Co. for 5 years, would have comprised 51 deaths from C., instead of 29, under a lax system of admission. This points to a material amount of protection effected by the former principles which guided the directors in the selection of lives.

A single death from C. in a proposer's family is not considered of itself a reason for rejection. Nevertheless, the preceding summary shows the necessity of caution even in that case. Four of the deaths present this flaw in the family ; and most prob. it existed in several of the others, for in 12 I find either no family hist., or at least no statement of the causes of death of deceased members.

An evident bar to acceptance in cases of the kind is the occurrence of suspicious symptoms of pulmonary disease in the proposer himself earlier in life. This is an objection which can seldom be set aside. One case only presenting it occurs in the list now under consideration. Accepted at 31, when his life seemed to be a fair one, he made another proposal 7 years afterwards, which was accepted, although he had sustained severe inflammatory catarrh two years before.

General delicacy, a state of health described as “tolerably good,” or “pretty good,” or “not robust,” a great liability to “slight common colds,” or “rheumatic pains,” or “bilious complaints,” a pulse habitually frequent—are all suspicious circumstances in one whose family has suffered at all from C. Among these particulars, I would call attention especially to a liability to indigestion as a serious ground of doubt, when even only one member of a family has been cut off by C. It is no unusual obs. in medical practice that C. is preceded by such liability. Either frequent indigestion favours the development of C. in the predisposed, by further impairing a previously doubtful constitution, or simply the two liabilities may be each the direct result of the same constitutional defect. But there can be no doubt of their connexion. . . .

It appears that the Directors of the *Standard* had, during the latter portion of the period under review, resolved to decline any life where 2 or more of the proposer's immediate family were ascertained to have suffered from Consumption. Dr. Christison says hereon :

Since adopting the general rule, . . . the directors have repeatedly had to consider whether the rule might be safely departed from in special cases, under favourable conditions. The exp. of the Co. supplies satisfactory information in regard to one of these conditions, viz. the advanced age of the proposer. According to some late notices on medical statistics of L. assu., *the notion long generally entertained that, subsequent to adult age, the proportion of deaths from Consumption diminishes with the advance of life, and becomes very small after 45 or 50, is not borne out by facts, and is therefore an unsafe principle to follow, in regulating the acceptance of proposals of assu.*

This position the learned author proceeds to combat, and he quotes the statistics we have already given regarding the deaths of males in Lond. from C. in 1845 : and also of

the patients in the Royal Infirmary of Edin. down to 1850, in support of this position. He continues :

I am not acquainted with any pub. data which will supply available information on this point. But the experience of the *Standard L. Assu. Co.* during the last 5 years—too limited, it is true, to yield absolute results—is satisfactory so far as it goes. Thus among lives accepted under the age of 40, 104 have died of all diseases, and 19 of these from Consumption—that is, 18·27 p.c. But among lives accepted after 40, of which 187 have been cut off by diseases of all kinds, only 10 have been cut off by C., or 5·2 p.c. Of lives accepted after 50, 122 have died, and only 3 of C., or 2·43 p.c. Of lives assu. above 55, 85 have died, and only 1 of C., or 1·2 p.c. And among lives accepted after 60, 53 have died, without a single death from C. These remarkable results certainly go to show that whatever may be the frequency of C. in the general pop. after middle life, it becomes progressively a less frequent proportional cause of death among lives accepted for assu. at a later and later period of life—that the risk from it is not great after 40, very small after 50, and quite insignificant after 55—that, therefore, great and increasing facilities must exist for escaping consumptive risks proposed after middle age—and that greater stringency than is now observed by the directors in accepting lives after that period of life is scarcely required so far as the fear of C. is concerned.

Reviewing the occupations of those who had died, he did not consider they pointed to any “useful information for an assu. co.” Among the sedentary trades and professions there were 5 shopkeepers, a tailor, a mercantile clerk, an engraver, a law agent, an accountant, a barrister, and a director of Chancery ; among those of average activity, a broker, a merchant, a wine merchant, and a flax merchant ; among the active occupations, a canal overseer, a bank porter, a surgeon, a farmer, an innkeeper, 5 country gentlemen, and 3 ladies.

In 1853, also, Dr. Begbie pub. in the *Monthly Journ. of Medical Science*, a second Report on the causes of death among the assured in the *Scottish Widows' Fund*, during the period 1846–52 inclusive. Out of 690 deaths in the septennium, 42 only, or about 6 p.c. of the total mort., were from C. “A small proportion, certainly (says the Doctor), considering that Consumption, according to the T. of the Reg.-Gen., annually accounts for 20 per cent. of the total deaths of England and Wales, or nearly 4 annually out of 1000 living.” Again :

This gratifying result in the experience of the so. is no doubt due to the care and caution exercised by the board in the selection of lives as far as possible free from consumptive taint ; and chiefly to the rejection, as ineligible, of all the younger applicants for assu. in whose immediate family tubercular disease has unequivocally manifested itself. The effect of this procedure is clearly shown by a reference to the tabular view of the deaths by decennial periods in the two reports. In the former, exhibiting the experience of the so. during the earlier years, when the same minute attention was not paid to family hist., we find 35 deaths recorded between 30 and 40—the most fatal period or C. in L. assu. bus. : in the latter we find only 12, out of a larger general mort., from the same cause at the same period. It may possibly occur to some that this marked difference may be accounted for in another manner, and that under the head of disease of the lungs, or under that of bronchitis, or other pulmonary affection, many of the deaths which ought to have been returned as C. ought to have been included. In reply to this, it can be stated that the number of deaths from disease of the lungs, not of tubercular origin, is actually smaller on this than on the former occasion ; and that though there is in our present T. a considerable increase of death under the head of bronchitis (which might have been expected from the greater prevalence of the disease of late years), still the deaths during the consumptive period are few in number—7 only before 50, and 29 after that age, 15 being upwards of 70—a fact which goes far to prove that these were not cases of C., and could not have been borrowed to diminish its mort.

In the 16th R. of Reg.-Gen.—returns for 1853—Dr. Farr tells us : “*Consumption is more fatal than any other single disease in England ; and 54,918 deaths are referred to that head. The deaths from this cause were 46,614 in 1850, and have since that year increased progressively without any very evident reason.*”

The lowest number of deaths from C. for a million of inhabitants of Lond. for any one of the 15 years from 1840 to 1854 inclusive was 2645, and the highest 3941 ; and the fluctuation is very slight. The figures in 3 consecutive years were as follows : 1849, 2777 ; 1850, 2645 ; 1851, 2970. “If then (says Dr. Guy) any one were to assert that this disease is contagious, which is tantamount to saying that it may be epidemic, the figures I have quoted would in themselves furnish an answer in the negative. They are suggestive of a domestic disease, influenced, as is bronchitis, by the seasons and the weather.”—*Public Health*, 1870.

In the 17th R. of Reg.-Gen.—returns for 1854—Dr. Farr says :

There is no ground for belief that *Consumption* is more fatal in England than it is on the Continent ; or that it can be at all characterized as peculiarly an English disease ; still it is a disease which deserves to be carefully studied in England, with a view both to its prevention and cure. Within the last eight years the disease appears to have declined to some extent ; for the deaths by phthisis were 53,317 in 1847, and 51,284 in 1854. Some may be inclined to see in this evidence of the efficacy of the modern modes of treatment ; but it will be well to wait before coming to a definite conclusion for more obs. And the increase of deaths by bronchitis from 16,499 to 20,062 in the same period, with the gradual diffusion of diagnostic skill, must be taken into account.

Mr. Haviland, in his *Climate, Weather, and Disease*, 1855, has an interesting chap. on the subject of Phthisis :

In England we learn from the statistical returns that the *spring* is the most fatal to C. patients, whether male or female ; but with regard to the other seasons there is considerable variability. For instance, suppose we take the seasons of 1838 in the order of their fatality to males, they would stand thus : *spring*, 1137 ; *winter*, 1048 ; *summer*, 968 ; *autumn*, 904. To females—*spring*, 972 ; *summer*, 937 ; *winter*, 896 ; *autumn*, 825. Then again, although the *spring* invariably takes the lead, the other seasons change places with each other from year to year ; and what is remarkable, this inconsistency does not seem to be dependent upon temperature, as we shall presently see. In the returns for 1853,

the following statistics on deaths from C. appear: *winter*, 1872; *spring*, 1971; *summer*, 1745; *autumn*, 1914. The order of fatality in the years above quoted would therefore be:—

1838.	<i>Males.</i>	1, Spring;	2, Winter;	3, Summer;	4, Autumn.
"	<i>Females.</i>	1, Spring;	2, Summer;	3, Winter;	4, Autumn.
1840.	<i>Total.</i>	1, Spring;	2, Winter;	3, Summer;	4, Autumn.
1853.	"	1, Spring;	2, Autumn;	3, Winter;	4, Summer.

So far, therefore, as seasons are concerned, the above T. prove that *spring*—i.e., April, May, June—is the most inimical quarter to phthisical patients; and that prob. *autumn*—Oct., Nov., Dec.—the least so. In Lond., at least, if not throughout England generally, the spring is undoubtedly the most obnoxious to consumptive cases; and this statement is in accordance with the experience of those physicians who have opportunities of seeing the rise, progress, and end of many hundreds of phthisical cases during the year. Dr. Richard Quain observes "that the cold easterly wind of spring completes the work which the winter had left undone."

In the Investigation Report of the *Standard L.*, pub. in 1855, there is contained, "An Analysis of a Retrospect of the Emerged Risks of the *Standard Assu. Co.*, from 5th Nov. 1850, to 5th Nov. 1855." The entire number of deaths was 423—of which 60 were attributed to C.:

C., the most important of all causes of death in their relation to assu., has occasioned an increase from 29 to 60 from one period to the other—that is, from 11·0 to 15·6 p.c. The causes of this increase are two in number. For first, the bus. of the Co. increasing in a geometrical ratio during the last ten years, throws into the newer period a larger proportion of those causes of death which operate chiefly in the early years of assu. life; among which causes C. stands pre-eminent; and, secondly, the spread of the practice of assuring has apparently extended to an earlier period of life, as shown by the much larger proportion of deaths from C. under 35 years of age (24 instead of 8) in the latter than in the earlier quinquennium. No improvement has taken place in the survivancy of the assured who have died of this disease. The 60 survived on an average only 5·7 years instead of 32·6, their average expectation of life—being a trifle more than a sixth of the natural term. In the last quinquennium it was exactly a sixth; so that it is prob. that the Co. must count on a loss of five-sixths of the expectation of life in the case of every assured person who dies of C. There is no class of cases therefore as to which so much care in selection is necessary.

In 1855 Herr Hopf, the then Manager of the *Gotha Life Assu. Bank*, communicated to the *Assu. Mag.* a paper on the results of the operations of that asso. during the first 25 years of its existence, 1829-53, "particularly with respect to the mort. amongst the lives assured." The total deaths in the period had been 4519; of these the deaths from "chronic diseases of the respiratory organs" amounted to 698. Consumption must be assumed to account for the far greater portion of these; 23 of the deaths occurred between the ages of 15-30; 163 between 31-40; 239 between 41-50; 181 between 51-60; 84 between 61-70; 8 between 71-87. The "intensity" of this class in relation to the total deaths was 15·45; being slightly exceeded by "common fevers," which were the most prevalent cause of death in this inst. The "intensity" of diseases of the respiratory organs at different periods of life was as follows: age, 15-30, 28·40 p.c.; age 31-40, 26·21 p.c.; age 41-50, 21·51 p.c.; age 51-60, 13·73 p.c.; age 61-70, 8·10 p.c.; age 71-87, 2·27 p.c.

This high per-centage (which did not include influenza) has been much commented upon by subsequent writers.

In 1856 Dr. Brinton, M.D., pub. his useful little book, *On the Medical Selection of Lives for Assurance*, wherein occurs the following passage [we quote from 3rd ed. 1861]:

Of all the hereditary complaints, *pulmonary tubercle* or *Consumption* is that which has the most important relation to L. assu. Careful inquiry entitles me to conjecture that the mort. from this disease, *among lives properly selected, does not exceed one-tenth of its average share in the general mort. of the whole pop., as shown by the Reg.-Gen. returns.* [Dr. Brinton says in a note, "I base this statement chiefly on my own experience as physician to a large assu. so."] And though much of this difference is ascribable to the class from which such lives are taken, and to the personal examination itself, yet much of it must also be attributed to the care which is usually exercised in inquiring into the hist. of this disease in the family of proposers for assu.

There is no tabular information as yet collected that affords satisfactory grounds for any exact estimate as to the frequency of hereditary Consumption. Accurately to diagnose the disease is often so difficult, that it is by no means every observer on whose statements we can rely. For example, nobody who is conversant with the details of sickness and death among the poor can suppose that in the many thousand infants ann. regis. as dying of Consumption, the statement is always (or even generally) based on a careful examination of the chest during life by an accomplished auscultator, much less by dissection after death. Mere inquiries of unprofessional persons respecting other members of their family affected with this disease are accompanied with a still greater (though somewhat kindred) vagueness. Some suppose C. and Decline to be quite distinct; and answer with a negative your question about the former, because they have heard the latter referred to. Others speak of asthma, bronchitis, pleurisy, and inflammation of the chest, in perfect ignorance that these terms may, and often do, conceal the primary tubercular disease on which they immediately depend.

The latency of the predisposition already referred to involves us in another and equally serious difficulty. If we only search amongst the fathers and mothers of our cases, we shall certainly overlook a great many well-marked instances of transmission. But the disease itself is so frequent a cause of death as to produce about 1 death in 7, or 15 p.c. of the whole mort. Hence, enlarging the sphere of our inquiries in any given family soon increases the chances of our meeting with this disease to a degree that makes it all but impossible for us not to detect it in some relative. For example, let us suppose the person who is the subject of our inquiry can afford no information respecting his father and mother, and the two brothers and sisters, as well as the father and mother, of each of these parents. Here, within this circle of closest consanguinity, are 10 persons, viz. 2 parents, 4 uncles and aunts, and 4 grandparents, of whom on an average 1½ will have died of C. Hence, except in numbers exceeding this average, mere deaths by Consumption afford no very safe conclusion.

My own inquiries among hospital patients decidedly consumptive, within this circle of relationship, are summed up by the statement that 90 p.c. had lost some one of the above relatives by what appeared to be the same disorder: and that instead of 1½ out of 10 (the average mort.), about ¾ had this died.

The author is of opinion that, notwithstanding this strong hereditary tendency of the

disease, "we have no right to condemn a person on the mere suspicion which a single instance in his family can afford." He then offers some "practical rules" which he thinks may guide in the selection :

There is an impression (which is favoured by some well-known facts in the physiology of generation) that the tendency to phthisis is more likely to be transmitted by a mother than by a father thus diseased. Other things being equal, it may be so. But such preponderance is often outweighed by a strong and predominant likeness of the offspring to either of these parents. For such an external likeness may well be supposed associated with an equal similarity of constitution ; especially where it involves the framework of the thoracic cavity in which the disease chiefly shows itself. Hence, though the father of our subject of inquiry may have died of decline, still if he himself takes strongly after his mother, this resemblance to the healthier branch of his ancestry goes far to nullify the injurious suspicions which his father's death might otherwise have excited.

Where, in add. to a consumptive father or mother, you find a consumptive brother or sister, you will do better to decline the life. The influence of a consumptive grandfather or grandmother, in add. to a father or mother, is rather less decisive ; because you will observe it is more dilute.

Where the father and mother have both died of C. there can be still less doubt. In the preceding cases the prob. of a consumptive tendency have been merely accumulated ; but in this case they are multiplied—so multiplied that (as is well known) such unhappy unions sometimes end a family, by the successive deaths of every one of the offspring with this dreadful disease.

Where neither father nor mother have died of C., and where the deaths, collaterally and upwards, within the above limits, are equally free from disease, it will often be very hard to say what influence the deaths of brothers and sisters should have. You had better, I think, allow for numbers ; and, for example : not permit 1 or even 2 deaths by C., out of 10 brothers or sisters, to decide you against an individual otherwise healthy. And, besides allowing for likeness (or the reverse) between the deceased relative and the subject of examination, you must recollect the influence of intemperance in the male, and of the few dangerous years that immediately follow puberty in the unmarried female. It will also be well to inquire at what ages consumptive brothers or sisters have died. Where they have all died, for instance, at or under the age of 25, and your subject of inquiry has already attained the age of 40, his danger has greatly diminished.

Indeed, in all cases, this diminution of the risk of C. with advancing age must be systematically allowed for. This decrease is such that at 40 half the danger is over ; at 50 three-fourths in the male, and four-fifths in the female ; at 60 but one-fourteenth remains, even in the male, in whom we may regard the liability throughout as about one-fourth greater than in the female (5 to 4).

In 1857 Dr. Stephen H. Ward, M.D., Medical Examiner to the London Board of Life Assn. of Scotland, pub. a little book : *On the Medical Estimate of Life for Life Assn.* The author says :

The prominent position which C. occupies in the mort. T. of this country is due far more to its undoubted and constant hereditary transmission than to any peculiarities of climate. It is evident, consequently, that the marked existence of this disease, in any great family, gravely affects the value of life of the survivors. To non-professional men it seems a hard matter to decline a life, otherwise of first-class character, simply because strumous disease has carried off certain relatives of the present or past generation. It is nevertheless a sound principle of action in L. assn. ; and the medical advisers of offices now make it a pretty general rule to recommend the rejection of a life when so many as two immediate relatives have died of C. . . .

It must be borne in mind that the existence of the strumous diathesis is shown not only by pulmonary phthisis, but also by diseased joints, curvature of the spine, certain eruptions, as lepra and psoriasis, glandular swellings, etc.

In the 21st R. of Reg.-Gen. (returns for 1858), Dr. Farr says, under "Causes of Death" :

The constitutional class, which includes, with a few others, dropsy, cancer, and the tubercular diseases, though doubtless subject to a great extent to human arrangements, will be modified chiefly by processes that are necessarily gradual, and less by the fluctuations of heat and cold. The deaths referred to it were 82,416 ; and they discover little difference in amount from those of former years. It may be remarked that supposing the pop. of Lond. is now rather more than double that of the Welsh division, the rate of mort. which they suffer from phthisis was nearly the same in 1858, though the two divisions are widely different in important circumstances. But other pulmonary diseases, bronchitis, pneumonia, asthma, etc., were more than three times as fatal in Lond. as in Wales. Though N. Wales and South agree in their ann. average rate of mort. (2 p.c.), yet in 1858 N. Wales contrasted favourably with the southern portion of the Principality as regards the mort. from phthisis, and still more favourably as regards that from other pulmonary complaints.

In 1858 the Royal Commission appointed to inquire into the sanitary condition of the Brit. Army, the state of the hospitals, etc., pub. its Report. This was a most valuable and important document. It disclosed a frightful state of things, and showed that whatever the primary cause of the great mort. of the army might be, the immediate cause of it was the prevalence of C. to an extent quite unprecedented, and quite unknown in connexion with any other series of obs. in the entire range of V. Statistics. Without any corresponding increase of deaths from other causes, those from diseases of the respiratory organs, taking all branches of the army, amounted to about 60 p.c. of the deaths from all causes. The Commissioners, finding that C. was the great scourge of the army, entered upon a consideration of the prob. causes of this state of things, and came to the conclusion that it must be attributed mainly to the overcrowding of the barracks, in which consideration the absence of proper ventilation was comprehended.

In 1858 Mr. F. G. P. Neison read before the Brit. Asso. Meeting at Leeds a paper : *On Phthisis in the Army.* His object was to combat at least to some extent the conclusions of the Commissioners as set forth in the R. just passed under review. He says :

If it be true that the increasing density of pop., particularly in the sense in which it is understood in regard to barracks' sleeping accommodation, has a tendency to augment diseases of the lungs more than all other diseases, then it is evident that districts in which the sleeping accommodation differs so widely must show a marked difference in the ratio of deaths taking place from phthisical causes. No doubt the results of the influence of a uniformly and generally increased density of pop. in a district which is not, in any considerable portion of it, highly intensified in its overcrowding, would be unfairly compared with the results of a district or section of pop. which is thoroughly overcrowded. . . . Although, therefore, there is no one district of the kingdom in which there is a uniform

system of overcrowding, still there are many . . . in which the overcrowding of large portions of them is such that, if the hypothesis be of any value, there must be at least a slightly augmented ratio of deaths from C. compared with the general ratio of increase from all causes. Let us see how far this is in agreement with recorded facts.

He then enters upon the inquiry indicated. We do not propose to follow him, but must rest content with his own statement of his conclusions :

A careful examination of the results given in this abstract leads to a conclusion quite at variance with the hypothesis of the Commissioners. In fact in the densest districts, the mort. from diseases of the lungs is relatively to the deaths from all diseases much less than in the more thinly pop. districts—

In Lond. the deaths are 41·8 p.c.

In England and Wales 46·5 p.c.

And in the residue of the country, after deducting the districts enumerated in Abstract C. 52·1 p.c.

It will be seen that the effect of density and overcrowding is not to intensify pulmonary disease so much as the class of zymotic diseases.

In 1859 Mr. James T. Hammick, of the Gen. Regis. Office, read a paper before the Social Science Congress (meeting at Bradford), *On the Relation between Density of Pop. and Mort. from Consumption*. This paper was in fact a reply to Mr. Neison's paper just noticed—and we think a very complete and overwhelming one. The author remarks :

It is proper to observe, however, that density of pop. does not of necessity imply overcrowding, although the latter may commonly be inferred wherever the degree of density is considerable. Overcrowding is of two kinds—(1) on the superficial area ; and (2) in cubic space—and either kind may exist independently of the other. In the country, where there is no surface overcrowding, a labourer's cottage may be so crowded by its inmates that disease may break out ; while, as in the case of model lodging-houses and many well-ordered public inst., it is quite possible, by a suitable construction of buildings, to have a dense surface pop. living healthily because occupying a large cubical space. The distinction is highly important, but statistical data for estimating the separate effect of each kind of overcrowding are unfortunately wanting. We must therefore be content to be guided in the formation of general conclusions by such materials as exist.

He then proceeds to invite the attention of his readers to a comparison of the deaths from phthisis and other diseases of the respiratory system in the healthiest parts of England with those in London, Lancashire, and the country generally ; and also to the influence of density of pop. on these diseases at different periods of life :

In default of a better standard of vitality, it will be convenient to employ for the purpose of comparison the mort. in the districts in which the sanitary conditions appear least unfavourable. The Reg.-Gen. has found in 63 districts, containing about a million of pop., the ann. mort. ranging on an average of 10 years from 15 to 17 in 1000. In these healthy, but not model districts, the inhabitants are scattered, and generally follow agricultural pursuits—but many sources of insalubrity exist in and about their dwellings. The density of pop. is 135 persons to a square mile, and the "proximity" or nearness of person to person is, on an average, 103 yards.

Here is the T. resulting :

	Pop.	Density.	Deaths in the 5 years 1849-53 from		Ann. Mort. to 100,000 living from	
	1851 (estimated to middle of the year).	Persons to a square mile.	Phthisis.	Other Diseases of the Respiratory Organs.	Phthisis.	Other Diseases of the Respiratory Organs.
In Healthy Districts ...	996,773	135	11,792	8340	237	167
In London ...	2,373,799	19,470	33,999	44,711	286	377
In Lancashire ...	2,077,672	1008	35,275	37,819	340	364
In Eng. & W.	17,982,849	308	251,595	240,964	280	268

In the metropolis, owing to special circumstances, which will presently be adverted to, the deaths from phthisis are greatly reduced : yet we find that 286 persons in 100,000 die ann. as compared with 237 in the healthy districts ; while from other diseases of the respiratory organs the Lond. rate of mort. was more than double that of the healthy districts. In Lancashire, where the aggregation of the inhabitants upon the surface of the soil is much denser than in any other county, Middlesex excepted, and where, if anywhere, the influence of density of pop. upon these diseases must be felt, the deaths from phthisis were 340, and from other pectoral diseases 364 p. 100,000—a mort. in excess of that of the healthy districts by 43 and 118 p.c. respectively. In the whole of England the deaths from phthisis were 18 p.c., and from other lung diseases 60 p.c. in excess of the healthy districts.

Again we are told, "Consumption is fatal to persons at all ages, from infancy to advanced life, but it is especially fatal at the soldiers' ages, between 15 and 35, when developed by the influences likely to call scrofulous diseases into action." The following T. shows the comparative mort. at these ages, divided into three periods of 10 years, in the localities under consideration.

	Density of Persons to a square mile.	Proximity or nearness of person to person. Yards.	Average Ann. Mort. 1849-53 to 100,000 living.					
			Phthisis.			Other Diseases of the Respiratory Organs.		
			15-25	25-35	35-45	15-25	25-35	35-45
Healthy Districts .	135	163	336	398	330	34	45	67
London ...	19,470	14	264	395	493	45	60	148
Lancashire ...	1008	60	419	475	484	46	86	195
Eng. and Wales...	308	108	362	438	407	38	61	113

It is thus seen that at the 3 periods of age, the excess of mort. in Lancashire was 25 p.c. at the first period, 19 p.c. at the second, and 47 at the third; and that the excess of deaths from other lung diseases in Lancashire was 35 p.c. in the first decennial period of age, 91 p.c. in the second, and 191 p.c. in the third.

The results for Lond. are exceptional, but they are precisely such as might be expected. At the earlier periods of age—15 to 35—the death-rate from phthisis was actually below that of the healthy districts, in the period between 15 and 25 in a very marked degree. The explanation of this fact is to be found in circumstances peculiar to the metropolis, where less than half the adult pop. consists of natives, the remainder being immigrants. The resolution to leave their homes in the country, “to go to Lond.” for the purpose of seeking employment, is rarely taken by the sickly. At the census of 1851 there were not far short of 220,000 domestic servants of both sexes in Lond.; with this class good health is an essential qualification. The pop., therefore, is recruited from a select class of persons usually in the enjoyment of robust health, and not likely, for a time at least, to augment the mort. from pulmonary disease. Another circumstance which undoubtedly contributes to diminish the deaths from C. at the earlier ages is the removal of young and unmarried persons, when they become afflicted with tubercular disease, to their homes in the country, where they die.

At the more advanced ages—from 35 to 45—when the immigrants, having become settled as Lond. residents, succumb under the influences which develop C., the T. exhibits a widely different result; for the deaths in the metropolis are raised to 493 p. 100,000 living as compared with 330 in the healthy districts.

Looking at these facts—and they might have been greatly multiplied—I think there is no avoiding the conclusion that *density of pop. exercises a powerful influence in producing a high tubercular mort.* No doubt overcrowding in dwellings and of dwellings is only one cause of many which contribute to this result; but the fact that it is a cause cannot be too frequently brought under notice, or too urgently pressed upon the attention of those who may help to remedy an evil which is not only a fertile source of disease, but also indecency and crime.

Again :

I cannot subscribe to Mr. Neison's theory that because increased density of pop. exhibits statistically a more moderate increase of mort. from pulmonary diseases than from diseases of the zymotic class, that therefore an excessive mort. from the former class of diseases cannot be due to overcrowding. My object has been simply to investigate the relation which exists between populouness and one important class of diseases, without extending the inquiry to the whole range of human maladies.

It may be said, and with considerable truth, that much of the excessive mort. from C. in towns is attributable to the influence of *occupations*. But is it not true that—except in the trades which induce pectoral complaints by the direct application of local irritants to the lungs—the insalubrity of the occupation arises from the vitiated atmosphere breathed by large numbers of persons in crowded and ill-ventilated workrooms: one of the worst forms of overcrowding? In the army, however, the enormous mort. from phthisis was traced to occupation; but deficient cubic space and defective ventilation went hand in hand in barracks, and the results are known to the world.

Finally :

Consumption must not be looked upon as a disease peculiar to our climate, and therefore not admitting of mitigation or prevention, but as a disease often clearly traceable to the impure air of closely-packed dwellings, crowded workshops, workrooms, and factories. *As most of the predisposing causes of fever are also those of pulmonary disease, every effort we make to banish the one will help to rid us of the other.* Let the towns be rendered healthy by a careful attention to the known means of preserving public health; let landlords and public cos. erect improved dwellings for the working classes; let employers, if influenced only by enlightened selfishness, see that their workpeople are not crowded together in ill-conditioned workrooms and factories; let parks and playgrounds be provided; let out-door games and athletic exercises be encouraged; let barracks, workhouses, and other public institutions be constructed and regulated in such a manner as to insure ample space for every inmate;—and it is not too much to say that the results of these beneficial arrangements would be the saving of prob. a third part of the lives now sacrificed to this terrible class of diseases, which numbers about 100,000 victims in England every year.

Dr. Farr says, in 22nd R. of Reg.-Gen.—returns for 1859 :

Tuberculous diseases, including phthisis or C., the most fatal of all, increased from the year 1850 to 1853, and since that year have again decreased, and most decidedly if we take the increase of pop. into account. More than 3 in a 1000 of the pop. died of these diseases, which caused 15 out of every 100 deaths. Phthisis was the cause of 12 out of the 15 deaths.

In a paper by Mr. H. W. Porter, B.A., read before the Inst. of Act. in 1860, *On some Considerations suggested by the Ann. Report of the Reg.-Gen., being an Inquiry into the Question as to how far the Inordinate Mort. in this Country, exhibited by those Reports, is Controllable by Human Agency* [vol. ix. *Assu. Mag.*], there occurs the following passage :

It will not, perhaps, be considered that I am asserting too much when I say that the mort. under this head is, in a great measure, produced by causes which are more or less under human control; and the classification of the occupations followed by those who fall a prey to C., which it will come within the province of the Reg.-Gen. to make, will serve, in course of time, to point out in what direction public attention must be turned, with the view to ascertain what may be the influence of the unhealthy nature of certain occupations and of peculiar local influences upon the duration of life, and to show our legislators how it is within their power to ameliorate the unhappy condition, in respect to health and longevity, which may by such means be made apparent, and possibly, moreover, to place in the hands of the medical profession the means of grappling with a disease which is the great terror of their country, and which has hitherto defied all human skill, and entirely baffled medical science.

In a later or continuation paper on the same subject, Mr. Porter offers the following obs., which have a practical value in relation to L. ins. :

One great cause of the maintenance of the high rate of mort. from phthisis is, no doubt, the intermarriage of persons in whom the hereditary taint of this disease exists. There is a theory put forth by Walker, that if one parent be afflicted with pulmonic disease, it is an even chance that any one child that may be the result of the marriage of two persons so situated should derive the organs of the chest from the parent so afflicted; and it has been suggested that this theory might account for the very capricious selection that this disease makes in the different members of the same family for its attacks.

Be this as it may, we know perfectly well that the hereditary transmission of this malady is an undoubted fact; and assu. cos., whose experience is so large on such points, very generally feel called

upon to reject applicants for L. assu., whose apparent health may be undoubted, when several cases of phthisis have occurred among the members of the family. Some cos. indeed think that it is safer to reject the case when the father or mother, or even one brother or sister, has died from this disease, if the applicant be young—say under 45.

In Walker's work on *Intermarriage* another theory is broached, viz. that under certain restrictions, the male gives to the progeny the external or locomotive organs, and the female the internal or vital organs. Arguing from the analogy of breeding among animals, this is more than a mere theory; and the fact is well known to breeders of stock. So much, indeed, do certain known laws with respect to propagation prevail, and so thoroughly have they been made the subject of scientific investigation, that a cattle breeder can produce, within certain limits, almost any class of animal he desires.

If we recognize the truth of this second theory, the necessity for extreme caution, on the part of the L. assu. cos. in accepting the lives of individuals whose mothers have died from any hereditary disease, becomes clearly apparent. Still arguing from what has been proved to be the case with respect to animals, assu. cos. might, with reason, carry their inquiries into the family hist. of lives proposed for assu. much further than they have yet thought of doing. It would, perhaps, startle a person desirous of assu. his life, to ask him whether his mother had been married previously to her marriage with his father, and if so, whether her former husband died of phthisis; and yet this would not be by any means a ridiculous inquiry.

Mr. Porter, with a view of following up certain branches of the inquiry upon which he had entered, applied to the authorities of the Brompton Hospital for C. and Diseases of the Chest. From the returns so obtained, he deduced (*inter alia*) the following conclusions:

The result of the medical inquiry based upon the facts recorded in the above cases showed that there was a greater liability to phthisis in males than in females. I mention this, as the result is stated to be not in accordance with the opinion entertained on this subject by writers of authority in this country, or on the Continent.

The intensity of the disease, judging from the hospital statistics, appears to be between the ages of 25 and 35 for males, and at ages a little younger for females.

The question of the contagious nature or otherwise of phthisis, as bearing upon the production of this disease, is not an unimportant one. The difference of opinion, however, on this point appears to be very great, and the evidence on the subject to be very contradictory. As long, however, as the question admits of a doubt, it would certainly be well to be on the safe side, and at all events to avoid needless exposure to contagion. The medical report of the hospital contains the results of a most interesting investigation into the question of the hereditary predisposition to phthisis.

With reference to the transmission of the disease, we learn from the report that it has been observed that one or more of several children of the same individuals may exhibit traces of the disease of their parents, and yet the other children of the family, though not apparently diseased themselves, may, on becoming parents, transmit to their offspring the elements of the disease, which only requires some exciting cause for its development. Thus a diseased parent in one generation will have offspring to all appearance healthy, and in the next generation apparently healthy parents will be found to have diseased children.

The result of the inquiry of the medical officers of the Brompton Hospital, as to the proportion of cases on the books in which hereditary taint could be traced, showed that out of 1000 cases, comprising 669 males and 331 females, 122 males and 124 females, forming 18 and 36 p.c. respectively of the whole, or 24½ p.c. of males and females combined, were born of phthisical parents; or, in other words, 1 in every 4 patients, nearly, of the 1000 cases under obs., was traced to be hereditarily predisposed to the disease. It appears, too, that females are more likely to inherit the disease than males, in the proportion of 2 to 1.

With a view to show how very large is the comparative proportion of those who appear to inherit phthisis from their parents—and accordingly to show how peculiarly severe the power of the hereditary transmission of this disease is—a comparison was instituted with the similar power in cases of insanity, which is also known to be, unhappily, too frequently transmitted through successive generations; and the result was, that 11½ p.c. males and 13¼ p.c. females—or combined 12½ p.c. of the cases under obs.—were born of insane parents. The prob., therefore, of the hereditary transmission of phthisis, as compared with that of insanity, is, taking both sexes together, as 2 to 1; and while the prob. of inheriting phthisis, as just shown, is twice as great among females as among males, that of a similar transmission of insanity is only 1½ p.c. greater.

Again:

As regards the hereditary transmission of phthisis, another investigation of the statistics of the Hospital for Consumption at Brompton showed, that where one parent only was affected with pulmonary disease, the fathers being so affected transmitted their disease to their sons in 63 out of 106 cases, being 59¼ p.c. of the whole number obs.; to their daughters in 47 cases only out of 108, being 43½ p.c.; while the mothers, being phthisical, transmitted the disease to their sons in 43 cases, being 40½ p.c.; and to their daughters in 61 cases, being 56½ p.c. of the cases under obs. Judging therefore from these figures, it would prob. appear, if a large number of cases were regis., that the power of transmission of disease by phthisical fathers to their sons, and by phthisical mothers to their daughters, is about the same. Very similar—in fact almost identical—results are shown by a similar comparison of the statistics of insanity.

We shall all agree with the author of the paper under review that:

The information which is the result of such inquiries as these cannot but be of great interest to those connected with the bus. of L. assu., and of the highest importance to the cos. themselves, if they wish, not as a matter of course, to reject applicants for L. assu. in whom an hereditary taint is suspected; in fact if they desire to act upon the principles which are the result of actual inquiries, instead of treating the cases brought before them in an arbitrary and unscientific manner, as they are now very much obliged to do.

Under OCCUPATIONS, INFLUENCE OF, other facts deduced from Mr. Porter's papers, and bearing upon Consumption, will be dealt with.

In 1860 Dr. James Begbie, M.D., pub. in a pamph. form his 3rd Rep. *On the Causes of Death in the Scottish Widows' Fund L. Assu. So. from Jan. 1853, to Jan. 1860.* Out of a total of 975 deaths during the septennium, 66 were attributed to C., being at the rate of 6¾ p.c. of the deaths, and showing a slight increase over that of the Report of 1853. Of these 66 deaths—of which 58 were males and 8 females—9 occurred between ages 20 and 30; 16 between 30 and 40; 22 between 40 and 50; 16 between 50 and 60. The learned compiler of the Rep. says:

No great improvement can be expected in the average survivancy of our C. risks, except by a rigid

attention to family hist., and careful examination, especially of the younger applicants for assu. Of the 66 victims of this disease who fell during the present investigation, the average survivancy was only 8'56 years, in place of 31'39 years, according to the *Carlisle T.*,—a little more than a 4th of their expect.

Again :

In two former reports I have entered fully into the subject of the hereditary transmission of C., and its bearings on the bus. of L. assu., with reference to the regulation to which I have alluded for avoiding consumptive risks, viz. that of excluding as ineligible all in whose immediate family more than one instance of the disease has manifested itself. This rule, which has guided the practice of the So. for 25 years, has been considered by some as too exclusive, and as tending to circumscribe too much the operations of L. assu.; but the experience of the So. amply justifies its continued application, with certain exceptions, hitherto acted upon : such as arise from the age, sex, and constitution of the proposer, the number of his family, the proportion of those who have been affected with the disease, and the period he may have survived the age which proved fatal to his relatives. This rule for avoiding consumptive risks—the most serious by far in L. assu. transactions—has been ably defended by Dr. Christison in his last report on the deaths in the *Standard Co.*, and illustrated by his experience of its operation.

In the 23rd R. of Reg.-Gen. (returns for 1860) Dr. Farr says :

Pthisis, the most fatal of all the diseases which afflict humanity, destroyed 51,024 lives, 2'599 in 1000 living, and more than 12 p.c. of the deaths. 520 of these deaths were by hæmoptysis (335 males and 185 females), and 15 by pneumo-thorax, that is by perforation of the membrane covering the lungs. The deaths by this complication of pthisis in the 6 years were 30, 22, 17, 23, 19, and 15; the fluctuation was thus within narrow limits.

In 1860 Dr. Godwin Timms, M.D., pub. a *Lecture on the Curability of Consumption*, which attracted some attention at the time.

In 1861 Dr. J. C. Steele, M.D., Sup. of Guy's Hospital, read before the Statistical So. a paper, *Numerical Analysis of the Patients treated in Guy's Hospital for the last seven years from 1854 to 1861* [vol. xxiv. p. 378], wherein occurs the following passage :

On reviewing the different classes in the T., it may be noticed that diseases of the organs of respiration occupy, as might be anticipated, the most unfavourable position as respects mort., the deaths amounting to more than one-fourth part of the total number affected with diseases of this class, and to no less than 27 p.c. of the total deaths from all causes. *Consumption in its numerous varieties and complications numbers 537 of the 813 deaths, or 18 p.c. of the total mort.* This item in our accounts, after all that has been said about unhealthy site and overcrowding, is in reality the cause of the chief discrepancy in results when we compare the mort. of one hospital with another; for in proportion to the cases of C. received, to the exclusion of diseases of a less grave character, so must the mort. of all hospitals be influenced.

In 1861 another investigation rep. was issued by the *Standard L.*, which contained a rep. by Prof. Christison on the mort. of that co. during the 5 years 1855-60. The total deaths in the period had been 582, of which 63 were from C.—being at the rate of 10'8 p.c. of the entire deaths—a much smaller per-centage than in the preceding quinquennium. "It is not prob. that with the means of inquiry which science now affords, the proportion can be reduced sensibly lower."

In 1862 Dr. J. G. Fleming, M.D., medical adviser of the *Scottish Amicable*, pub. *Medical Statistics of Life Assu.*, etc., being in fact an inquiry into the cause of death among the members of that So. during the period from 1826 to 1860, "with remarks on the medical selection of lives for assurance." The total deaths in the So. during that period were 773, of which those ascribed to Consumption were 107—97 males and 10 females. Of these again 4 males and 1 female died between ages 15-25; 29 males and 4 females between 25-35; 36 males and 3 females between 35-45; 21 males and 2 females between 45-55; 5 males between 55-65; 2 males 65 and upwards. The average duration of the ins. in the consumptive cases was 5'331 years. The per-centage of deaths on lives at risk was 1900; the per-centage of deaths from all causes 13'8421. The greatest proportionate mort. occurred in the following occupations : Clerks, hotel-keepers and spirit-merchants, bakers, shopkeepers, and in-door mechanics. Under the head of "Consumption," the learned Doctor offers (*inter alia*) the following remarks :

This class in the Rep. of the Reg.-Gen. under the name of "Tubercular Diseases" includes Scrofula, Tabes Mesenterica, Hydrocephalus, and Consumption; but as the deaths from the first three are very rare—scarcely appreciable among the assured—the calculations are made on C. alone. *Of all diseases this is the one which assu. cos. most dread, as from it the greatest amount of premature mort. occurs.*

Great as the mort. from C. is among the assured, it falls far short of that in the general pop., whether estimated on the lives at risk, or on the deaths from all causes. By the first method the mort. among the members of the *Amicable* has been as nearly as possible one-half of that experienced in the community at large.

A result so favourable to assu. sos. naturally leads to inquiry as to the causes to which it may be ascribed. The following appear to me to be those most deserving of notice. 1. A very large proportion of the victims of C. are under 35, and the number of members of assu. sos. under that age is small as compared with that of the general community. Of the pop. of England between 15 and 75, 54 p.c. are between 15 and 35; of the *Amicable* 30, and of the *Gotha* only 15 p.c., are between those ages : so that the pop. of assu. inst. is so apportioned that a comparatively large proportion is beyond the age at which C. is most lethal. 2. C. is a disease to which the working and lower orders of society, who constitute a very large proportion of the pop., are more liable, in early life at all events, than the assuring classes. They are exposed to many more of the exciting causes of the disease; such as cold, exposure, privations, unhealthy occupations, neglected illnesses, and when a hereditary tendency exists, are by no means so favourably circumstanced for employing or obtaining means to counteract its influence. 3. Many deaths from C. are undoubtedly saved to assu. sos. through the medical examination to which applicants are subjected. There is, perhaps, no disease to the detection of which, or any tendency thereto, either personal or constitutional, the medical examiner is more alive; and if we except diseases of the kidney, there is none in the diagnosis of which medical science has of late years made more progress, by directing attention to early and insidious symptoms, and devising methods for detecting them. 4. Besides the above, many individuals

who would willingly effect assu. on their lives are deterred from proposing, knowing that they would most prob. be declined on the grounds of family hist. So that, heavy as the mort. from C. may be among the assured, it is small when compared with that of the general pop.; and assu. cos. may congratulate themselves that they have so many protecting influences from a disease which carries off about a fourth of the pop. between 15 and 75 years of age.

Returning to this particular So., Dr. Fleming gives us the result of a very interesting investigation:

On a careful scrutiny of the papers of the 773 members who have died since the commencement of our So., I find that 64 of them had each lost a near relative or relatives from C.; when we deduct these 64 from the total mort. (773), we have 709 whose papers do not show any consumptive tendency. Of these 94, or 13.25 p.c., of the 709 deaths, died of C. Of the 64 whose papers show a hereditary or constitutional tendency, 13, being 20.31 p.c., died of C. Had the deaths from this disease among the 64 been in the same proportion as among the 709, the number would have been 8.5, which added to the 94 gives 102.5, or 4.5 fewer deaths from C.

According to the preceding obs. of the deaths, 8 p.c. of the proposals accepted seem to show a consumptive tendency; and that this is quite in accordance with the general proportion among the whole is confirmed by the careful examination of 1000 cases accepted continuously previous to 23rd Dec. 1861. Of these 69, or 7 p.c., had lost one member of their immediate family, namely, father, mother, brother, or sister; and 11, or 1 p.c., at least 2 members of their immediate family from C. For the small difference of 102.5, instead of 107, being 4 p.c. on the deaths from C. or a half p.c. on the deaths from all causes, would we be justified in denying the benefits of L. assu. to all applicants who had lost 1 or even 2 members of their immediate family from this disease?—or even would any adequate advantage accrue from exercising more stringency than at present in reference to such cases? I think not. But still I am decidedly of opinion that no relaxation ought to take place. The fact of 13 p.c. from C. being the proportion of the 709 deaths which occurred among the members of our So. whose papers did not show a proclivity to the disease, and 20 p.c. among the 64 whose papers did, indicates the propriety of the greatest circumspection in dealing with such proposals. It appears to me that in the present state of our knowledge, no very general or fixed rule can be adopted, but that every case must be examined carefully on its own specialities, and a deliberate and reflective judgment formed thereon.

The writer proceeds to state that it had been suggested to him “that persons with a consumptive tendency might be of weaker constitutions, more liable to disease, inferior lives in short, and likely to die prematurely of other diseases than C. The following abstract was therefore prepared, from which “this does not appear to have been the case”:

The average duration of all the lives exposed to risk was	...	...	5'49 years.
Of the 773 members who died	...	...	7'170 "
" 666 who died of diseases other than C.	...	...	7'480 "
" 64 who had a hereditary tendency to C.	...	...	7'335 "
" 94 who died from C., having no hereditary tendency	...	...	5'40 "
" 13 who had a hereditary tendency, and died of this disease	...	...	5'25 "
" 107 who died of C.	...	...	5'431 "

The following T., “showing the duration of the cases of C. as returned in the medical certificate of death,” is also given:

Under 3 months	...	...	...	...	...	4
Above 3 and under 6 months	...	...	...	...	...	16
" 6	9	...	...	...	...	22
" 9	12	...	...	...	...	19
" 12	18	...	...	...	...	19
" 18	24	...	...	...	...	10
" 24	36	...	...	...	...	8
Above 36 months	...	...	...	...	...	1
Not stated	...	...	...	...	...	8

Total 107

Four of the “not stated” died abroad, or at sea, having gone in search of health.

Dr. Flensing then offers the following criticism upon the experience of other offices (to which we have already referred in this paper), and that of his own:

It will be observed that the returns of the mort. from C., when measured by that from all causes, vary greatly in the different assu. sos.—from 7.80 in the *Widows' Fund*, to 16.30 in the *Gotha*; or if we compare the British Corp. alone, we find a difference of 6 p.c. between the *Widows' Fund*, which is the lowest, and the *S. Amicable*, which is the highest—the first giving 7.80, the latter 13.84. No doubt the circumstance of the *Widows' Fund* being an older inst. than the other may partly account for this, for, as the members advance in life, a greater number of them will die from diseases incident to age, and consequently lessen the proportion of deaths from the diseases incident to early life. Still, the disparity is too great to be accounted for by this cause alone, and must, I think, to some extent, depend on the vague or inaccurate returns as to the causes of death. Dr. Begbie, for instance, in his last rep. on the *Widows' Fund*, gives the deaths from C. at 180, out of 2307, and concludes a full list of diseases of the organs of respiration with “diseases of lungs, 67.” I confess I am somewhat at a loss to make out what diseases of the lungs, or their investing membranes, other than those he enumerates, could produce so many deaths. The same remark applies to Dr. Burt's rep. on the *N. British*, which gives 34 deaths out of 1303 from “diseases of lungs,” besides a full proportion for 6 specific diseases of these organs. A return in similar terms was by no means unfrequent in the *S. Amicable*; but on careful inquiry or correspondence with the medical men making it, the disease generally turned out to have been C. It occurred to me that a fair method of avoiding these discrepancies, and arriving at more accurate results, was to add a line to the T., combining the total C. mort. with that of the diseases of the respiratory organs . . . as, when thus taken together, any error of special diagnosis would be of no importance. On referring to this line it will be seen that the disparity of the former one in a great measure disappears. If we exclude the *Gotha*, where it is still high, the 5 Brit. sos. show very harmonious results—the *Lond. Equitable* and *Widows' Fund* being lower than the other, very much in the proportion that might be expected from their being older institutions.

Finally :

A most important point for assu. cos. would be to ascertain the age at which the hereditary or constitutional tendencies of C. become so worn out, or weakened, that they might with tolerable safety be ignored in the selection of lives. There can be no doubt that, as a general rule, hereditary C. lays hold of its victims at an earlier period of life, than when the disease is acquired or induced by incidental causes. Statistics have shown very conclusively that three-fourths of all the deaths from C. in the general community take place under 45 years of age. This was exactly the proportion between 15 and 45, on an average of the 7 years 1848-54; and it was quite the same on the combined mort. from this disease in the *Widows' Fund* and *Standard* under 50, and the *S. Amicable* under 45—embracing 376 deaths. . . . *From my observation on the whole subject, I incline rather strongly to the opinion that the hereditary or constitutional proclivity is well exhausted by 45—presuming that the individual is then strong and hale; and that a large proportion of the cases which occur after that age are acquired from accidental causes, or supervene on other diseases; and these are cases which assu. cos. have few means of escaping.*

We have by no means exhausted all the considerations of which Dr. Fleming so ably treats.

In 1862 Dr. Guy read before the Social Science Congress a paper : *On some Results of a Recent Census of the Pop. of the Convict Prisons in England; and especially on the Rate of Mort. at present prevailing among Convicts.* Dr. Baly, the predecessor of Dr. Guy as Medical Sup. of Millbank Prison, had observed C. "to be rife among convicts." Dr. Guy followed up the subject, basing his obs. upon recorded facts extending over several years; and also upon an enumeration of the inmates of convict prisons in March, 1862. We can only glance somewhat briefly at the results :

There occurred, then, in that year [1861] among the male convicts, 68 deaths from *all causes*. The average daily pop. subject to this mort. amounted to 6022. . . . Among the same pop. of male convicts there occurred in the same year 21 deaths from C. (being part of the mort. from all causes). If the 6022 convicts among whom these deaths from C. occurred had been part of the pop. of England, subject to the English rate of mort. from C., the deaths would have amounted to 22. But if they had been part of the pop. of Lond., subject to the metropolitan rate of mort. from C., the deaths would have been 27 in number; so that according to the one comparison, the deaths from C. among convicts fell short of the calculated rate by 1, according to the other by 6. But of the two pardons on medical grounds granted in this year 1861, one was on the ground of C.; and if we assume that this man died within the year, the total of deaths from C. occurring among the convict pop. will amount to 22, being the calculated number for England, and 5 less than the calculated number for London.

In this same year the deaths from all causes among the 1204 female convicts were 11 in number. . . . The deaths from C. which occurred in the same year among the same pop., were 6 in number, to which, if we add one woman discharged as suffering from C., and reckon it as a death, we have 7 deaths from this disease against the calculated number of 5 for all England, and 4 for London.

In the year 1861, therefore, the rate of mort. of male convicts, when calculated in the manner least open to exception, and compared with the best standards we possess, was highly favourable, and that of female convicts far from unsatisfactory. [PRISON LIFE, MORT. AND SICKNESS RESULTING FROM.]

In 1862 Dr. J. G. M. Burt pub. in the *Monthly Journ. of Medical Science*, and afterwards in pamph. form, *Report of the Causes of Death among the Assu. in the North British Ins. Co., from the commencement of the bus. in 1823, up to 31st Dec., 1860, being a period of 37 years.* Dr. Burt was the medical adviser of the Co., and this was the first rep. on its mort. which had been prepared. The total deaths in the period named had been 1303; and their average duration on the co.'s books 10'66 years. The deaths from C. were 107, or 8'21 p.c. of the entire deaths. The average duration of these latter was 7 years and 11 months, and their average expec. 30'64. Of the 107 deaths 6 occurred in the first year after acceptance; 3 in the second; 9 in the third; 12 in the fourth; 6 in the fifth; 9 in the sixth; 10 in the seventh; 11 in the eighth; 5 in the ninth; and 6 in the tenth year. This accounts for 77 deaths. The remaining 30 cases died after being on the co.'s books from 10 to 26 years. The greatest mort. occurred between ages 40-50 (34 deaths); in the previous decade they were 32. Another rep. upon the mort. experience of this co. is now in course of preparation.

In the 25th R. of Reg.-Gen. (returns for 1862) Dr. Farr says :

The tubercular order [of diseases] includes Scrofula, Tabes Mesenterica, Hydrocephalus, and Consumption (phthisis), and 66,612 deaths in the aggregate, of which 50,962 were due to phthisis. The mort. by phthisis was 2'533 in 1000; and in every 1000 deaths 118 were by this fatal malady. There is some evidence of reduction in the mort., which in 1850-4, 1858-62, was at the rate of 2'811 and 2'586 p. 1000: thus showing a diminution of '225 in the ann. death-rate. Unhappily the deaths by bronchitis, with which in the chronic state phthisis is liable to be confounded, increased more than the deaths by phthisis fell. Tubercular deposits, which in adults take place in the lungs, affect the brain and mesenteric glands of children, and give rise to water in the head and abdominal disease, Hydrocephalus, like phthisis, has somewhat fallen off.

In the Supplement to this 25th R. of Reg.-Gen. [pub. 1864], it is shown that the mort. of boys between the ages of 10 and 15 from C. in England during the 10 years 1851-60 was at the ann. rate of '076. The mort. of girls from this cause is much greater, "which at this early age shows its predilection for their sex." He adds :

How much organization, in-door life, and compression of the chest interfering with the free action of the breathing organs, have to do with the excess of Consumption in girls, it is difficult to say. Of the salutary effects of free breathing in the open air there can be no doubt, and if they are studied, it is prob. that among them will be found the reduction of the mort. by Consumption from '129 to a figure nearer that of boys, '076, which is still higher than it ought to be.

At the Meeting of the Brit. Asso., held at Cambridge in 1862, Dr. Edward Smith, "Assistant Physician to the Hospital for Consumption at Brompton," read a paper, *A Statistical Inquiry into the Prevalence of Numerous Conditions affecting the Constitution in 1000 Consumptive Persons.* We can only present in a condensed form a few of the main points of the paper.

The inquiry was made upon 600 male and 400 female patients of the above-named Hospital, and was intended to show the influence of all the causes which are believed to modify the health. The average age of the patients was 28·8 years; 30 p.c. had been born in Lond.; 36 p.c. had lived chiefly in Lond.; and 53 p.c. had lived in Lond. during the preceding 3 years; 8·8 p.c. could not read or write; and only 14·3 p.c. had been insufficiently nourished.

Parental Conditions.—54 p.c. had lost the father, 46 p.c. the mother, and 28 p.c. both parents; in 25 p.c. only were both parents living. The average age of the parents at death was 50·8 years, with an increased duration of 4·7 years on the part of the fathers. The most frequent age at death was 35 to 55 years, whilst only 11 p.c. died under the age of 35; and some lived upwards of 95 years. 18 p.c. had experienced feeble health before the birth of the patient, and 34 p.c. throughout life; in 22·7 p.c. one or both parents had led unsteady lives. 21·1 p.c. of the parents had died of Consumption, whilst in 2·8 p.c. the grand-parents; in 23·3 p.c. the brothers or sisters; and in 9·1 p.c. the aunts and uncles had died of the same disease. They had suffered from rheumatism in 22 p.c., from asthma in 9·4 p.c., from liver disease and gout in 9 and 7·2 p.c., and from fevers, ague, insanity, and diabetes in 4 to 5 p.c. Presumed scrofulous affections were extremely rare. In only 6 cases was there consanguinity of the parents.

The age of the parents at the birth of the patients was, in half the cases, from 25 to 35 years, and in only 2 p.c. was it less than 20 years. The number of the children was very large, viz. an average of 7·5 to a family; and in some families there were 23 children. The patient was the first child in 20 p.c., and the 1st, 2nd, and 3rd child in half of all the cases. 40 p.c. of the parents' children had died.

Personal Conditions.—In 23 p.c. were the patients under age 20, and a few were 60. 24 p.c. had been feeble at birth, whilst 22 p.c. had suffered from feeble general health, and 17 p.c. from generally defective appetite. In 12·6 p.c. the lungs had always been delicate; 2·5 p.c. had been dry-nursed; 25·4 p.c. had perspired with unusual freedom; 25 p.c. had never worn flannel next the skin, and 55 p.c. had suffered from coldness of the extremities; 72·5 p.c. had an excitable temperament; 62·1 p.c. had medium brown or light-coloured hair; 74 p.c. had grey or blue eyes; 60 p.c. had florid complexion; and 46·7 p.c. had a fleshy habit. 16 p.c. had not had measles, 65·4 p.c. scarlet fever, 60 p.c. smallpox, and 41 p.c. hooping-cough; and the frequency of long-continued ill effects from these diseases was insignificant. 12·8 p.c. had suffered from enlarged glands, and 4·5 p.c. from long-continued affection of the eyes; but otherwise the ordinary scrofulous disease scarcely existed. 16·7 p.c. had suffered from inflammation of the lungs, and 14·8 p.c. from rheumatism; whilst typhus fever and frequent diarrhoea had occurred in 8 p.c., ague in 6 p.c., and liver disease in 4·3 p.c. of the cases. The menses appeared at age 14 and 15 years in 36·4 p.c.; and in 11 p.c. only was it before age 13. 43·5 p.c. were married, and of these 13 p.c. had not borne children. Their average age at the birth of the first child was 20 to 25; and only 9 p.c. were under 20. The number of children per family was 1 and 2 in 44 p.c., and 1, 2, and 3 in 55 p.c.; 38 p.c. of the children had died, and in 43 p.c. the general health of the children was bad. Abortions had occurred in 46·2 p.c. of the child-bearing married women. 29·6 p.c. of the males had led a bad life at some period; 24·5 p.c. had smoked tobacco; 19·3 p.c. of both sexes had submitted to late hours; and 22·2 p.c. had suffered much anxiety. In 70 p.c. some complaint was made as to the injurious influence of their occupations, as exposure, long hours, close and hot rooms, bending posture, dust, or fumes, etc.

The author further entered into a consideration of hereditary transmission, and showed the relation of such an inquiry to the purposes of L. ins.; but he was of opinion that as consumptives are a very mixed class of persons, and the causes of the disease most various, the only safeguard to L. offices was the careful examination of the chest of applicants by competent physicians.—*Vide Brit. Asso. Rep.*

In a paper read by Dr. Waller Lewis, M.D., medical officer of the General Post Office, before the Social Science Congress in 1862, *On the Health of the Lond. Postmen*, we find the following:—"During the whole time [from June, 1855] that I have been attached to the department, up to the commencement of last year, 50 p.c. of the deaths have been due to C.—a proportion more than double the normal ratio." He considers, however, that a considerable part of this mort. had arisen from the former practice of admitting men into the service without proper medical examination. Now, "nearly 20 p.c. are rejected for physical causes, independently of those disqualified by the Civil Service Commissioners."

In 1863 a paper by Dr. R. E. Scoresby-Jackson, M.D., appeared in the *Trans. of the Royal So. of Edin., On the Influence of Weather upon Disease and Mort.* He treats especially of C. as follows:

Instead of examining the influence of weather upon the tubercular class of diseases as a whole, it will perhaps be more profitable to confine my remarks to one, and that the most fatal, of such diseases. The order of the months according to the death-rate from phthisis, from the highest to the lowest, is as follows:

April	35·9	June	33·5	July	30·3	August ...	26·0
March	35·1	February...	32·3	December ...	28·1	September..	23·1
May	33·6	January ...	30·6	November ...	26·7	October ...	23·9

The average monthly ratio of deaths from phthisis pulmonalis p. 100,000 living at all ages, in the eight larger towns of Scotland, during the 6 years 1857-62 inclusive, is exhibited in the following T., together with some of the meteorological characteristics of the corresponding periods :

Year.	Mort.	Mean Temp.	Mean of the Monthly Ranges of Temp.	Mean of the Daily Ranges of Temp.	Mean Height of Barometer.	Mean of the Monthly Ranges of Barometer.	Total Rainfall in inches.	Total of Days of N., N.E. and E. Winds.
1860	32'4	44'5	31'3	11'8	29'785	1'444	37'88	105'0
1862	30'1	46'1	30'0	11'5	29'812	1'218	45'29	74'0
1858	29'5	46'6	45'8	12'8	29'916	1'294	33'91	74'0
1857	29'4	48'0	49'8	11'8	29'893	1'236	30'56	98'8
1861	29'1	46'9	30'9	11'6	29'838	1'099	45'07	83'0
1859	28'7	46'7	33'6	12'7	29'817	1'289	37'17	76'0
Average	29'7	46'5	36'9	12'0	29'843	1'263	38'31	85'1

There is yet another T. somewhat too extended to be trans. to these pages, but the purport of which will be indicated in the following summary :

From the foregoing T. it will be seen—1. That a low mean temperature in the winter months gives rise to an increase in the death-rate from phthisis, and that this relationship is the more clearly observable if the low temperature be sustained for some time without intermission, as in the case of the months from Nov. 1859, to Feb. 1860, inclusive. A high summer temperature does not seem to increase the fatality of phthisis. It is only when the temperature of winter is remarkably low that the increased death-rate from phthisis is distinctly traceable to that cause. 2. That the relationship between the monthly range of temperature and the death-rate from phthisis is uncertain, and that the latter is not under the control of the former. 3. That the daily range of temperature exerts no constant influence upon the death-rate from phthisis. 4. That there is no constant relationship observable between the mean monthly height of the barometer and the death-rate from phthisis. 5. That if there be any indication of a constant relationship between the monthly range of the barometer and the death-rate from phthisis, it is that the death-rate increases with the range. 6. That the rainfall bears no constant relationship to the death-rate from phthisis. It is possible, however, that it may be inverse in the colder, and direct in the warmer months. 7. That possibly an increase in the number of days during which north, north-east, and east winds prevail, may give rise to an increase in the death-rate from phthisis.

The following passage appears to embody the result of much practical obs. :

The influence of weather upon diseases of the respiratory organs differs greatly from its influence on phthisis pulmonalis. In the former, the atmosphere comes immediately into contact with the seat of the malady ; in the latter it merely touches a local manifestation of the disease. It is the oversight of this difference that leads to so much disappointment in the employment of change of climate as a remedial agent. In selecting a locality for the residence of a patient afflicted with a disease of the respiratory system—as bronchitis, asthma, or the laryngeal affections—too much care cannot be observed in matters meteorological ; but in choosing a winter resort for a phthisical patient, there are many circumstances of more weighty importance than the weather, to the consideration of which meteorology ought to be subordinated. Change of climate as a remedial agent in the treatment of C. is exceedingly valuable when properly employed, but equally mischievous when used without a due regard to all the circumstances of the case. To treat C. by change of climate on meteorological grounds alone, is simply to endeavour to combat a symptom without reference to the pathology of the disease ; and it would be quite as reasonable to expect a cure from the mere use of a poultice or a cough mixture. To despatch a consumptive patient to a foreign country only for meteorological reasons, if he be unable to enjoy the change, in spite of the anxiety, fatigue, and discomforts which must attend the sacrifice of his ordinary pursuits, the separation from his friends and a sojourn amongst strangers, is not useless only, but *cruel*.

In the 26th Rep. of Reg.-Gen. (deaths, etc., in 1863), Dr. Farr says :

Phthisis differs essentially in its pathological products, in its complications, and in its fluctuations, from bronchitis. For example, the mort. by bronchitis is immediately doubled, or trebled, by a depression of the temperature of the air, while the deaths by phthisis exhibit little variation. But these diseases are often confounded ; and the distinction between chronic bronchitis, or the bronchitis of miners, and consumption, was even recently not obvious to many practitioners. Under these circumstances what significance is to be attached to the fact that the mort. p. 1000 by bronchitis ranged from '822 to '978 in the 3 years 1850-52 ; and from 1'558 to 1'648 in the 4 years 1860-3 ; while the mort. by pneumonia and pleurisy slightly declined ; and the mort. by phthisis ranged from 2'624 and 2'826 to 2'511 and 2'611 ? Is it to be inferred then that there has been an actual decrease of deaths by C., and an increase of deaths by bronchitis ? Is the effect of the treatment by cod liver oil in phthisis visible in the returns ?

If we divide the 14 years into 3 periods, as in [the following] T., . . . it will be observed that the mort. ascribed to phthisis decreased from 2'811 p. 1000 to 2'574 ; while the mort. by lung diseases increased from 2'769 to 3'309 ; by phthisis and lung diseases the mort. in the two periods ranged from 5'580 to 5'883.

Average ann. rate of mort. to 10,000 living, by *Phthisis* and *Lung Diseases*, in England, for the 3 periods 1850-54, 1855-57, and 1858-63 :

Years.	Lung Diseases.	Phthisis.	Phthisis and Lung Diseases.	
			Total.	Increase in the Periods.
5 years, } 1850-54	27'69	28'11	55'80	...
3 years, } 1855-57	31'03	26'83	57'86	2'06
6 years, } 1858-63	33'09	25'74	58'83	0'97

To carry the analysis further, the ages of the dying from phthisis and bronchitis must be distinguished; and this is done in the T. [following], which show that phthisis reigns from the age of 10 to 55, and after 65 gives place to bronchitis. The mort. p. 1000 by phthisis among males of the age of 15-25 was 3'28, 3'12, and 3'10 in the three periods; among females 4'00, 3'93, and 3'76. Again, at the age 25-35 the mort. of males by phthisis was 4'04, 3'93, and 3'94; of females 4'68, 4'51, and 4'46. The decrement is not considerable, but as age advances it becomes greater; it is greater too in the first 5 years of life. The great increase of the mort. of bronchitis is at the age after 65; but at the age 45-55 the increase is noticeable. The increase in infancy is also considerable.

The mean temperature of the three periods differs little; in the first and last periods it was equal, or 49'4°. The year of lowest temperature, 1853, in the first period was 47'7°; in the last period, 1860, it was 47'0°.

	1848-54	1855-57	1858-63
Mean Temperature.....	49'4	49'0	49'4
Lowest Temperature	47'7 (1853)	47'1 (1855)	47'0 (1860)

By grouping the deaths by bronchitis and phthisis together [as in the last of these T.], we obtain this singular result: the mort. at the ages 5-35 declined; at the ages 35-55 the increase of mort. was scarcely perceptible; at all the ages after 65 the increase was considerable.

Dr. Farr found that not less than 67,280 persons died during the year 1863 of "diseases of the respiratory organs"—being at the rate of 3'308 deaths p. 1000 of the entire pop.; or 14'349 p.c. of the total deaths. The consideration of these facts led to the comments already given; and they also led to the construction of the following T., based upon the general returns of E. and W. The reasons for divisions into the particular periods shown, are indicated in the para. already quoted. *These are the first National returns which had been produced*; and they are deserving of most careful consideration. We have reproduced the T. in their entirety, except that as to the meteorological obs., which are sufficiently defined in the text.

TABLE showing Average Ann. Number of Deaths of Males and Females by *Phthisis* and by *Bronchitis* in E. and W. in 3 periods, ranging from 1848 to 1863.

Ages.	In the 7 years 1848-54.		In the 3 years 1855-57.		In the 6 years 1858-63.	
	Phthisis.	Bronchitis.	Phthisis.	Bronchitis.	Phthisis.	Bronchitis.
MALES.						
All ages.	23,820	8869	23,657	12,541	23,995	15,443
0—5	2000	3128	1706	4436	1444	5984
5—10	689	124	561	161	552	186
10—15	840	40	762	54	712	48
15—25	5489	132	5458	158	5628	160
25—35	5347	229	5389	293	5495	311
35—45	4016	429	4236	583	4477	671
45—55	2870	783	3007	1071	3145	1275
55—65	1733	1248	1742	1763	1824	2140
65—75	720	1578	687	2260	623	2661
75—85	108	996	103	1489	89	1712
85—95	8	176	6	267	7	286
95 and upwards }	1	6	—	6	2	11
FEMALES.						
All Ages.	26,829	8378	26,791	12,225	26,935	15,053
0—5	1896	2660	1658	3766	1414	5085
5—10	768	127	666	183	653	205
10—15	1369	46	1232	53	1260	54
15—25	6996	151	7144	164	7308	170
25—35	6638	221	6755	326	6960	327
35—45	4487	369	4751	527	4845	604
45—55	2512	661	2582	938	2614	1121
55—65	1434	1151	1355	1772	1311	2127
65—75	604	1633	544	2411	482	2952
75—85	115	1119	95	1728	81	1986
85—95	10	226	9	342	6	401
95 and upwards }	4	14	3	15	3	21

AVERAGE ANN. RATE OF MORT. p. 1000 Males and Females by *Phthisis* and by *Bronchitis* in E. and W. 1848-63.

Age.	In the 7 years 1848-54.		In the 3 years 1855-57.		In the 6 years 1858-63.	
	Phthisis.	Bronchitis.	Phthisis.	Bronchitis.	Phthisis.	Bronchitis.
MALES.						
All Ages.	2'70	1'01	2'54	1'35	2'45	1'58
0—5	1'69	2'65	1'35	3'51	1'07	4'42
5—10	'65	'12	'50	'14	'47	'16
10—15	'87	'04	'75	'05	'67	'05
15—25	3'28	'08	3'12	'09	3'10	'09
25—35	4'04	'17	3'93	'21	3'94	'22
35—45	3'95	'42	3'96	'55	3'92	'59
45—55	3'91	1'07	3'74	1'33	3'72	1'51
55—65	3'59	2'59	3'29	3'33	3'23	3'79
65—75	2'69	5'89	2'44	8'01	2'05	8'76
75—85	1'11	10'27	1'01	14'63	'83	16'14
85—95	'60	13'80	'45	21'05	'53	22'76
95 and upwards)	'26	10'47	...	12'63	'44	23'57
FEMALES.						
All Ages.	2'92	'91	2'75	1'26	2'62	1'46
0—5	1'61	2'26	1'32	3'00	1'05	3'78
5—10	'73	'12	'60	'16	'56	'17
10—15	1'44	'05	1'24	'05	1'21	'05
15—25	4'00	'09	3'93	'09	3'76	'09
25—35	4'68	'16	4'51	'22	4'46	'21
35—45	4'18	'34	4'10	'45	3'98	'50
45—55	3'21	'85	3'07	1'12	2'93	1'26
55—65	2'71	2'18	2'41	3'16	2'16	3'51
65—75	1'94	5'25	1'57	6'97	1'36	8'34
75—85	'93	9'06	'73	13'25	'60	14'79
85—95	'53	11'87	'46	17'65	'32	20'46
95 and upwards)	'42	13'51	'33	15'08	'30	21'32

AVERAGE ANN. RATE OF MORT. by *Phthisis* and *Bronchitis* in E. and W., 1848-63.

Ages.	Average Ann. Rate of Mort. to 1000 living.					
	In the 7 years 1848—54.	In the 3 years 1855—57.	In the 6 years 1858—63.	In the 7 years 1848—54.	In the 3 years 1855—57.	In the 6 years 1858—63.
	MALES.			FEMALES.		
All Ages.	3'71	3'89	4'03	3'83	4'01	4'08
0—5	4'34	4'86	5'49	3'87	4'32	4'83
5—10	'74	'64	'63	'85	'76	'73
10—15	'91	'80	'72	1'49	1'29	1'26
15—25	3'36	3'21	3'19	4'09	4'02	3'85
25—35	4'21	4'14	4'16	4'84	4'73	4'67
35—45	4'37	4'51	4'51	4'52	4'55	4'48
45—55	4'98	5'07	5'23	4'06	4'19	4'19
55—65	6'18	6'62	7'02	4'89	5'57	5'67
65—75	8'58	10'45	10'81	7'19	8'54	9'70
75—85	11'38	15'64	16'97	9'99	13'98	15'39
85—95	14'40	21'50	23'29	12'40	18'11	20'78
95 and upwards)	10'73	12'63	24'01	13'93	15'41	21'62

In the 6th Rep. of the medical officer of the Privy Council, pub. 1864, there occurs the following passage:

When many persons are employed together in any in-door industry, the ventilation of the workplace is likely to be so bad as to convert the employment, which perhaps in its own nature is not of hurtful

tendency, into an employment seriously dangerous to health. Here (as I anticipated in my rep. for 1858) lies the explanation of a fact most deplorable for the working classes of our country, that, *in proportion as the people of a district are attracted to any collective in-door occupation, in such proportion, other things being equal, the district death-rate by lung diseases will be increased.* For the bad ventilation, which as a rule belongs to the place of employment, tends to develop among the workpeople a large excess of phthisis, and prob. also some excess of other fatal lung disease. And prob. in all England there is no exception to the rule, that, in every district which has a large in-door industry, the increased mort. of the workpeople is such as to colour the death return of the whole district with a marked excess of lung disease. The mortuary statis. recently laid before Parl. place this matter in a singularly striking light. In those returns, for instance, it may be seen that while about 100 deaths by phthisis and other lung diseases are occurring in various agricultural districts of England among men aged from 15 to 55, there occur in similar masses of pop. in Coventry 163 such deaths; in Blackburn and Skipton 167; in Congleton and Bradford 168; in Leicester 171; in Leek 182; in Macclesfield 184; in Bolton 190; in Nottingham 192; in Rochdale 193; in Derby 198; in Salford and Ashton-under-Lyne 203; in Leeds, 218; in Preston 220; and in Manchester 263. The same sort of evidence comes out even more strongly when (as in the annexed T.) the statis. are limited to the decennial of adolescence, and are so given that, with regard to districts where only one sex pursues in-door industry, the death rates of the sexes may be compared. There, for instance, it is seen—and not any one who knows the circumstances under which girls are employed in lace-making and straw-plaiting can wonder at the fact—that among the adolescent pop. of Berkhamstead, Newport Pagnell, Towcester, and Leighton Buzzard, the female victims of lung disease are more than twice as numerous as the male. And there again, in the death rates of Leek, Congleton, and Macclesfield, the same sort of sad testimony is borne (but not exclusively by the female pop.) as to the atrocious sanitary circumstances under which much of our silk industry is conducted:

District.	Nature of Principal Industry in the District.	Death-rates by Phthisis and other lung diseases, at between 15 and 25 years of age p. 100,000 of each class referred to.	
		Male.	Female.
Berkhamstead.....	Extensive female employment in straw-plaiting	219	578
Leighton Buzzard...		319	554
Newport Pagnell ...	Extensive female employment in lace-making	301	617
Towcester		239	577
Yeovil	Extensive, female with some male, employment in glove-making	280	409
Leek	Extensive employment, more female than male, in silk work	437	856
Congleton		566	790
Macclesfield		593	890
Standard Northern Districts.....	Agriculture	531	333

In 1864 a Rep. by Prof. Christison, on the Mort. Experience of the *Colonial L.* for the 5 years 1854-9, showed that while in the experience of that Co. the ratio of deaths from C. in the West Indies was 66 p. 1000, in the East Indies it was only 41.

Dr. Farr says in 28th R. of Reg.-Gen. (returns for 1865):

The prevalence of phthisis in the armies of Europe is probably due in part to the inhalation of expectorated tubercular matter, dried, broken up into dust, and floating in the air of close barracks. To test this may be difficult, but the origin and propagation of the most fatal of all human diseases deserves full investigation. The inquiry should also extend to cancer and the other constitutional diseases, among which should perhaps now be included diabetes. It is not easy to ascertain how diabetes is set up in the system, and it is still more difficult to learn the action of the diabetic elements on the blood of other organisms.

In 1865 there was pub. by Mr. Arthur Pearson, Assist. Act., *Mort. Experience of the Metropolitan Life from 1st Jan., 1835, to 31st Dec., 1864.* The total deaths had been 671, of which deaths from Consumption were 51; and of which, again, 1 occurred under 20; 3 between 20 and 30; 12 between 30 and 40; 19 between 40 and 50; 13 between 50 and 60; and 3 between 60 and 70. The author says:

In the classification of the causes of death, Consumption has been included with diseases of the respiratory organs, to afford a means of comparison with the experience of other sos.; and also from a doubt entertained of the technical accuracy of the returns made of this particular class of disease, generally throughout the kingdom.

The total deaths included in the class were—

Laryngitis ...	2	Pneumonia ...	31	Consumption ...	51
Bronchitis ...	36	Hydrothorax ...	9	Disease of Lungs	20
Pleurisy ...	12	Asthma ...	2	Total... ..	—163

Showing a mort. of 3 p.c. over all ages. [METROPOLITAN LIFE.]

In 1865 Mr. John Mann, "Examining Surgeon to the *Brit. Empire Mut. L. Assu. Co.*," pub. *A Contribution to the Medical Statistics of L. Assu., with Hints on the Selection of Lives.* Under Consumption we note the following:

In relation to the pecuniary interests and prosperity of a L. assu. co., this disease wears a very grave aspect. There are reasons for thinking that the ratio of the mort. of different classes is not equally distributed among the community, but that it falls with peculiar severity upon the industrial middle classes. This may be partly accounted for by the length of their labour, and the brevity of their hours of rest; but still more by the anxiety and care they suffer, especially when their expenses from an increasing family have continually a tendency to augment more rapidly than their income.

In the earlier years of a L. assu. co. the proportion of deaths from this disease is also likely to be large, because of their emergence at an early period of life; and although from this cause the percentage of lives lost will be great, the per-centage of prems. lost will be greater still. This we shall be able to demonstrate in a striking manner from the returns of the *Brit. Empire*: 67 of our insurers [insured] have died from phthisis in our first decennium. Of these 1 death occurred under 20 years of age; 14 from 20 to 30; 33 from 30 to 40; 9 from 40 to 50; 9 from 50 to 60; 1 between 60 and 70.

He found on analyzing the family history, as disclosed by the documents supplied to the office, that of the above 67, but 21 only came within the class *hereditary*; 23 were of the *doubtful* class; and 24 *non-hereditary*. He compares these proportions with the returns of the Consumption Hospital, and arrives at this conclusion:

It may be assumed then that the proportion of cases which we have assigned to the decidedly hereditary class is considerably below the truth; and that the proportion of the third class (or non-hereditary) ought to have yielded only 27 p.c., instead of 35. These various figures in the exp. of the L. assu. co., as compared with that of the Hospital, show, with presumable accuracy, in what proportion it is more easy to arrive at the *truth* of family histories, *when no pecuniary loss*, nor any social disadvantage, is likely to arise from a fair and frank statement, in which there is no attempt at either concealment or misrepresentation.

The following paragraphs refer to points of much interest in the practice of L. ins.:

If we next calculate the proportions of the number of deaths, and then that of lost years of expectancy and consequent loss of ann. prems. arising from this disease, as compared with the total number of deaths, and the total number of lost years of expectancy, arising from all other causes whatever, then we find that to phthisis are due 26·07 p.c. of the deaths; but in consequence of the early periods of life at which phthisis occurs, and the shortness of the period for which many of these insurers survive their acceptance, that 77·25 of the total losses of expectancy and of ann. prems. are due to this cause alone. If we could have totally excluded one-third of the fatal C. cases, which is perhaps the utmost that human foresight could accomplish, it would have materially diminished our ann. income, but also in a much larger proportion it would have increased our profits.

Of these 67 cases of phthisis, 16, or nearly 24 p.c., were taken on the hazardous list, and at extra prems., in some cases amounting to a deduction of nearly half the expectancy. In others the deduction amounted to no more than one-sixth. These surcharges, which the progress of time demonstrates were insufficient to cover the add. risk, are often resisted and combated with extraordinary pertinacity and violence on the part of L. assu. agents. In one instance a life proposal was made by a young man of 25, which the medical examiner employed by the office placed upon the hazardous list. The agent procured the report of another medical man, which was altogether favourable. It was then objected that the evidence of each side was equal: a third examiner was therefore chosen, who agreed with the second that the life in question was sound and good. The office was then prevailed on to accept an insurer who survived nomination only 11 months. The amount of popular discontent, not to say tumult, about these just and necessary surcharges, which was excited by interested parties at one of the ann. meetings, will not soon be forgotten.

The average duration of the disease in 57 cases in which a medical certificate of the duration of attendance was returned to the office amounted to 5 months and 3 days. The individual periods, however, were very unequal; in 10 being not more than 10 days each; in 2 not more than 2 days; in others reaching to 15, 20, and 25 months. This variety and occasional brevity, Mr. Mann says, accords with general medical experience. He points out the wide range "of human life which is liable to the inroads of phthisis"—the deaths from this cause occurring from 20 up to 70 years of age. He gives some instances, drawn from the experience of his own office, of the "great severity with which the industrial class of insurers [insured] are visited with this disease." And finally he says:

These researches demonstrate the important relations existing between this disease and the commercial prosperity of a life assu. co. For although it would be repugnant to the first and fundamental principle of life assu., which is, that the long lives should pay for the short ones, to exclude any class, yet, on the other hand, if by any circumstances the short lives should be permitted very much to exceed their due proportion, the Co. would itself be in danger of gradually declining from a state of commercial prosperity to one of commercial difficulties. The diligent use of those means of investigation which may enable us beforehand to distinguish consumptive lives, in order either to reject them or to surcharge them in some fair proportion to the add. risk, is not only therefore of importance to all L. assu. cos., but would, *a fortiori*, be of the highest importance to our own.

In 1865 Dr. Wm. Robertson, M.D., submitted to the directors of the *Scottish Equitable* a Report upon the "Causes of Death" in that So. during the period 1831-64—or 33 years. The document, which was afterwards printed, is one of great interest.

In 1866 another investigation report was issued by the *Standard L.* Prof. Christison gave a further rep. on the mort. of the Co. The total deaths in the quinquennial period 1861-66 had increased to 877—those from C. were 175 or 12 p.c. of the whole. The learned Prof. remarks:—"Family hist., personal configuration, especially in respect to the chest, the expression of the features, or actual threatenings of lung disease, enable the experienced assu. physician to eliminate many cases which would otherwise prove a source of serious loss to the co."

In the same year there was prepared for the *Standard L.* by Dr. Christison, *Suggestions to Medical Referees for the Examination of Persons proposing L. Assu.* These were intended for the use of the local medical examiners of that co.; but this renders them only the more valuable for our purposes:

The most important of these constitutional infirmities is the consumptive constitution, as to which a separate inquiry is directed in Q. vii. [of proposal form of *Standard*]. When this is suspected to exist, the causes of death of every member of the proposer's immediate family should be inquired into and stated; and if the members of his immediate family be few in number, or very young, the inquiry should be extended to his next blood relations, viz. his grandparents, uncles, aunts, and cousins-german. The proposer, in every case of suspicion of this infirmity, should be submitted to a careful stethoscopic examination.

When so many as two members of his immediate family have died of C., the life must in general be regarded as a very doubtful one for assurance. But, nevertheless, there are personal circumstances

which may so far outweigh this objection as to allow of a moderate risk being accepted. These are—
 1. The proposer's own general good health, and freedom from colds in particular. 2. A robust frame.
 3. A well-formed chest, not flat, or narrow, or high-shouldered. 4. Absence of the scrofulous character of the countenance. 5. A low, deep respiration. 6. Resemblance to the healthy side of his house, when C. has come into the family by one side only. 7. A sound state of the lungs, estab. by a careful stethoscopic examination. 8. His age beyond the period when C. is most apt to be developed in those constitutionally predisposed to it. When the medical referee judges a case to be admissible, notwithstanding a consumptive tendency in the family, he should state in his certificate what are the circumstances in the particular case which in his opinion outweigh that objection.

In 1866 a Report [called "Supplementary Rep."] on the Mort. Experience of the *Scottish Equitable*, from 1831 to 1844, as prepared by Dr. William Robertson, M.D., medical officer to the So., was pub. Out of a total of 1855 deaths, 210 had arisen from Consumption. Of these 12 occurred under age 25; 60 between 25 and 35; 67 between 35-45; 47 between 45-55; 19 between 55-65; 5 between 65-75. The Rep. says:

In regard to the *intensity* of the various causes of death, it is notorious that C. is the disease which occasions the greater number of early deaths among persons assu. It is, however, fortunate that the rules under which lives are admitted have the effect of diminishing the risk from this fruitful cause of mort. to little more than half of that encountered by the general pop. of all England. The "intensities" at the several decennial periods of life are as follows:

ANN. MORT. FROM C. IN 100 LIVING AT EACH PERIOD.

	15-24	25-34	35-44	45-54	55-64	65-74	75-84
All England	0'356	0'430	0'409	0'348	0'286	0'201	0'087
Scottish Equitable	0'245	0'239	0'161	0'142	0'111	0'114	—

[The numbers for all England are deduced from T. III. and T. IV. at pp. viii. and ix. of Supplement to Reg.-Gen. 25th Ann. Rep.]

It will be observed that at ages above 44 the "intensity" of C. is comparatively small, while after 54 it appears to be well-nigh exhausted, at least among the class of the assu. The practical conclusion suggested is, that the objections drawn from an indifferent family hist. do not apply with the same force to a proposal of assu. made at or after the middle period of life, as to one made by a person under 35; *in short there are cases in which the occurrence of two or even more fatal cases of C. among the immediate relatives of a proposer need not be considered an insuperable bar to his eligibility for assu. at the ordinary rates, if he has passed middle life, and the personal points in his hist. are favourable.*

In the 29th R. of Reg.-Gen. (deaths, etc., 1866), Dr. Farr says: "Consumption alone caused 55,714 deaths. The mort. by C. was at the rate of 2'653 to 1000 living; being less than the mort. by the same disease in 1850-54, but more than the mort. in the ten years following." He adds:

The mort. from the great order of respiratory diseases (*pneumatici*) has progressively increased since the 5 years 1850-54, from 2'769 p. 1000 living to 3'409 in 1860-64; and to 3'678 in 1866. The increase is chiefly in *bronchitis*, and it corresponds with a decline of the deaths referred to *phthisis*, with which, in its chronic form, it was confounded. The increase of the deaths from the mort. of the two diseases proceeded regularly from 3'827 to 4'006 and to 4'225 in the 3 quinquennial periods that ended in 1864; in 1866 it went up to 4'621. Taking the sum of the mort. from *phthisis* and all the respiratory order of disease, to avoid any ambiguity, the mort. for the same years was 5'580, 5'803, 5'976, and 6'331. The cause of this increase deserves to be carefully studied. [RESPIRATORY ORGANS, DISEASES OF.]

In a valuable series of papers contributed to the *Lancet*, in 1868, by Dr. C. J. B. Williams and his son, Dr. C. T. Williams, is given the following information respecting this disease. Out of 500 cases which had come under the treatment of the senior Williams in 16 years—the patients belonging almost entirely to the upper and middle ranks of society—116 died, and 384 survived. Of the 384 survivors, 285 were in the first stage, and in 135 of these there was a distinct improvement. Of the patients in the third stage 22 of them were improved, 13 remained stationary, and 10 only became worse. Of the 116 patients who died the average period between the first treatment of the disease and death was exactly 8 years. The 384 survivors had exceeded an average of 9 years and 7 months. Again, two-thirds had lived 5 years and upwards; and one-third only less than 5 years. Of these 384 survivors, 175 were well, 93 tolerably well, and 116 invalid; so that nearly 70 p.c. had retained or regained the power to work.

In 1868 Dr. James Begbie pub. his 4th Rep. *On the Causes of Death in the Scottish Widows' Fund L. Assu. So., from 1st Jan., 1860, to 31st Dec., 1866.* The total deaths in the septenary were 1398, of which 96 were attributed to C. These latter had on an average been ins. 12 years and 8 months—nearly 4 years beyond the average of the previous investigation. We are told:

Of those 96 deceased, it was known of 10 that, before acceptance, they had each lost a father or mother by C.; of 8, that they had each lost a brother or sister; and of 6, that they had each lost an uncle or aunt by the same disease. In several cases cousins had been affected; and in one instance a wife had died of the disease. In 15 other instances a suspicion attached, either personally or relatively, to the insured. An attack of hæmoptysis at some distant period, an acknowledged susceptibility to cold, or the marks of a strumous habit, were overcome by the otherwise healthy appearance and soundness on examination; while the circumstance of a mother dying after childbirth, or a brother or sister of tubercular disease of the bowels or brain, or of hip disease, or white swelling of the knee-joint, was not permitted to outweigh the good points in the individual himself or his family hist. An instructive lesson is to be learned from these facts. In 9 instances only was an increased prem. paid as a small protection against so much loss to the So.

Our T. again show that neither in the case of an early ins., nor of one effected in later years, did any of the consumptive risks attain their expectation period.

Finally, the following T., showing the mort. from C. in relation to the general mort. of the so. during the entire period of the operations of the so., from 1815 to 1866, is given:

Age at Death.	From all Causes.	From Consumption.	Ratio p. c.
Between 20 & 30	124	37	29·83
„ 30 „ 40	437	89	20·36
„ 40 „ 50	694	73	10·51
„ 50 „ 60	914	54	5·91
„ 60 „ 70	852	23	2·70
Above 70	650	...	...
Causes not ascertained.	34	...	...
Total	3705	276	7·45

At the Meeting of the Brit. Asso. held at Norwich in 1868, Dr. Edwards Crisp, M.D., read a paper *On the Statistics of Pulmonary Consumption in 623 Districts of England and Wales*. The subject, he said, was one of great importance as regarded the health, happiness, and longevity of the human race, for notwithstanding the sanitary measures adopted in this and other countries, he had reason to believe that Consumption was on the increase. It appeared to follow the march of civilization, and its prevalence had a direct connexion with pop., and the artificial habits and the vitiated atmosphere in which they lived. He took his returns as to the mort. of E. and W. from phthisis from the Reg.-General's Rep. from 1857 to 1861, dividing the pop. by the number of deaths, so that the highest numbers indicated the greatest exemption from disease. At Chelsea the number was 28, whilst at Hampstead it was 61—so that while 1 person in 28 died at Chelsea from phthisis, only 1 in 61 died from the same disease at Hampstead. With regard to pulmonary C., the returns showed that the death-rate corresponded with the density of the pop.; that the general mort. in E. and W. was at the rate of 24·47 p. 1000; that in the healthy and more thinly-populated districts the rate was only 17·53 p. 1000; while in the large towns it was 28·01. In the agricultural part of Surrey it was 18 p. 1000, in Westmoreland 18, in Sussex 19, in Lincolnshire 19, and in Dorsetshire 19; while in the metropolitan part of Surrey it was 25, in London 24, in Staffordshire 25, Lancashire 27, Yorkshire 23, West Riding 24, and North Riding 19. At Bromley in Kent, at East Hampstead in Berkshire, and Duberton in Somerset, the rate was only 16; at Tenbury in Worcester, King's Norton near Birmingham, Hampstead, Pershore in Worcester, Haltwhistle, Bedford, Longtown, and Bootle, the rate was from 14 to 17; at Bellingham in Northumberland it was only 14, and at Glendale and Rothbury it was 15. In Wales the least mort. was at Knighton, where it was 16; in England the lowest rate was at Bellingham. The total deaths in the ten years were 4,210,715, of which 508,923 were from phthisis, the deaths of females exceeding those of males by 30,313. In the 12 districts of E. and W., the proportion of cases to pop. was—North-west, 31; Monmouthshire and Wales, 32; Lond., 34; Eastern Counties, 37; Yorkshire, 37; North Midland, 39; South-eastern, 39; South Midland, 40; South-western, 41; West Midland, 42; Northern Counties, 42; so that the West Midland and Northern Counties were most exempt, and in the North-western Counties and Wales the disease was most prevalent. During the 6 years before 1866, the mort. of Norwich from C. was in the ratio of 1 death to 12·11 deaths from all causes. Amongst sailors the most fatal stations as regarded phthisis were the western coast of Africa and the Mediterranean. A dry atmosphere, cold or hot, was most frequent in districts where phthisis was comparatively rare. The causes of phthisis included soil, climate, amount of pop., nature of occupation, hereditary predisposition, and the communicability of the disease. There was no doubt that one frequent cause of phthisis was the exposed state of our railway stations and steamboat piers, which people would hurry to reach in order to save a boat or train, and where, having become heated, they were in cold weather liable to a sudden chill.

In the discussion which followed the reading of the paper, some interesting points were elicited. Mr. F. P. Fellows said he thought he could account for the low rate of C. at Hampstead as compared with Chelsea. The town was situated at a considerable elevation and beyond the smoke of London, on a soil of sand and gravel; whereas Chelsea was in a low-lying locality resting on sand, and he believed that, like Battersea, Chelsea had been reclaimed from the river. Birmingham was healthy because it was built on sand-hills. With regard to the east and west coasts, he thought it would be found that the western coasts were more healthy than the east coasts, because they were not subject to the bleak east wind. Dr. Crisp, interrupting, said phthisis was much more prevalent on the west coast than on the east coast. Mr. Fellows, upon this, said he could not undertake to explain the fact then. Professor Hennessey observed that the prevalence of the disease was much more marked in the interior of the country than along the coast, and the cause, he thought, was to be explained by the peculiar structure of the country. Mr. Holland said he was employed some years ago by Government to investigate the cause of an alleged excess of phthisis in the Cornish districts. In the Reg.-Gen.'s returns all pulmonary diseases were classed under the head of phthisis. Now this was a

great mistake, C. and phthisis being totally distinct diseases. Upon investigation, he found that the lives of the Cornish miners were shortened ten years on the average by pulmonary diseases, but that the proportion of phthisis was not in excess at all. Nor did he think there was an excess of phthisis in the western towns: there might be an excess of pulmonary C. Dr. Crisp briefly, in reply, contended that phthisis means pulmonary C.

In 1868 a further T. of the mort. of the *Scottish Equitable* from 1st March, 1864, to 1st March, 1868, was pub. Out of a total of 658 deaths occurring in the 4 years, 59 were attributed to C. Of these 2 occurred under 25; 11 between 25 and 35; 22 between 35-45; 15 between 45-55; and 9 between 55-65. The per-centage of mort. on lives at risk was '1886; on deaths from all causes 8'9666. The mean age at death was 42'94 years.

In 1868 the *Gresham L.* published the causes of the first 1000 deaths which had occurred among its members up to 15th July, 1866. Of these 158 were attributed to tubercular diseases—153 out of that number to C. Of these 4 died under 20 years of age; 25 between 20 and 30; 64 between 30 and 40; 42 between 40 and 50; 14 between 50 and 60; 3 between 60 and 70; and 1 between 70 and 80. The deaths from C. were 15'3 p.c. of the entire deaths—but then it will be remembered that "diseased lives" was for many years a leading feature of the office.

In 1868 the *Briton L.* pub. its mort. exp. Out of a total of 1165 deaths occurring in the 5 years ending 31st Dec. 1867, 166 were attributed to diseases of the respiratory organs—124 males and 42 females. This is at the rate of 143 p. 1000 deaths, or 14'3 p.c. This includes the mort. from certain "diseased lives" taken over from *New Equitable*, etc.

In 1869 a paper was read before the *Geological So. of Lond.*, by Mr. William Whitaker, F.G.S., *On the Connexion of the Geological Structure and the Physical Features of the South-east of England with the Consumption Death-rate*. The conclusions he has arrived at are the following:—1. That on pervious soils there is less C. than on impervious soils. 2. That on high-lying pervious soils there is less C. than on low-lying pervious soils. 3. That on sloping impervious soils there is less C. than on flat impervious soils. 4. These inferences must be put along with the other fact, that artificial removal of sub-soil water alone, of various sanitary works, has largely decreased C. From which follows the general inference that dampness of soil is a great cause of C. Many facts in support of this view were adduced.

In the 5th ed. of *Medical Examination for L. Ins.*, by Dr. Adams Allen, M.D., pub. in Chicago in 1869, occur the following interesting obs.:

The well-known hereditary character of C. is always to be borne in mind; but it does not therefore follow that every applicant, one of whose parents died of C., is uninsurable. The opinion seems to be gaining ground, especially in England, that the proportion of non-hereditary cases of this disease is much larger than has been supposed. "That the tuberculous constitution," says Dr. Aitkin, "is transmitted from parent to child," has long been a popular belief, and regarded as one of the best estab. points in the etiology of disease. Actual proof, however, has never yet been afforded of the justness of the general conviction. Out of 102 phthisical patients admitted into Brompton Hospital for C., 26 p.c. came of tuberculous parents, "a circumstance which may be predicated of any mass of individuals taken in a hospital, viz. that 26 p.c. of them are of phthisical parents." On the other hand, while the general statement may be made, that some cases of phthisis may be traced to hereditary influence, "it is undoubted that much phthisis is in each generation non-hereditary." Our present limits do not admit a lengthy discussion of the topic; but the following conclusions seem to the writer warranted by past experience. *First*. Where both parents have died of Consumption, the risk should invariably be rejected. *Secondly*. If brothers or sisters of the applicant have died of the same disease, the risk is rendered less desirable. *Thirdly*. A risk otherwise desirable need not be rejected because the party's mother died of C.; but if the party has not already and safely passed the age at or about which the mother was attacked, extreme caution should be exercised in the acceptance of the risk.

In 1870 Dr. W. Guy pub. his excellent popular treatise on *Public Health*, already quoted in this art. He speaks of C. "as the chronic plague of the prime of life."

Mr. Alfred Haviland, who is performing such good service in his inquiries into the Geographical Distribution of Diseases [DISEASES, GEOGRAPHICAL DISTRIBUTION OF], pub. in the *Brit. Med. Journ.*, in 1870-1, his lectures on the medical geography of phthisis and cancer. He shows that in E. and W. consumption and cancer have a distribution the reverse of each other: that is to say, that wherever the one is most prevalent, the other is least so. C. finds the fewest victims in sheltered areas, and the greatest numbers in those districts which lie facing the easterly and westerly winds, and are subject to their unmitigated force. In the high lands, however, that are protected, and have the full purity of the prevailing sea-winds without their force, C. is least fatal. In England, as in the U.S., there are districts so happily situated as to be unfavourable to the development of each of these scourges. Cancer and C. are each found to be more abundant near the sea, and to diminish as you recede from it. For instance, along the alluvium-bounded terminations of the rivers is found the greatest number of deaths from cancer; and when the aspect is unprotected from the full brunt of the prevailing winds, then the greatest number of deaths from C. take place. This is well seen on both the east and west coasts. We shall hope soon to see further contributions on this important aspect of the subject from the same pen.

In the 33rd R. of Reg.-Gen.—returns for 1870—Dr. Farr again returns to the subject:

About phthisis there is some difficulty of nomenclature, as its most striking systems of slow wasting and decline, according to vulgar obs., are produced by tubercular deposits and ulceration, by chronic bronchitis, or by mechanical irritants and foulness in the breathed air, as in the grinders' rot of Sheffield, and in the Cornish miners' malady. Allowing for erroneous diagnosis does not account for the

decrease in the mort. of phthisis from 3'03, 2'79, and 2'82 p. 1000, in the 3 years 1853-5, to 2'40, 2'41, and 2'44 in the last three years. As a set-off against the decrease is the increase of the mort. referred to bronchitis and pneumonia in the corresponding years, from 2'57, 2'37, and 2'88, to 2'52, 3'18, and 3'17.

In 1871 Dr. Charles Theodore Williams, M.D., Oxon, contributed to the *Medico-Chirurgical Transactions* [vol. liv.] a paper, *On the Duration of Phthisis Pulmonalis, and on certain Conditions which influence it*. The author treats the subject mainly from a "remedial" point of view; and for this reason we do not intend to follow him. He says: "From having watched the course of the disease in several thousands of cases, and from having investigated the records of many thousands more, I have come to the conclusion that comparatively few cases of phthisis die under *one year*; and I find this conclusion to be shared by physicians who have had the largest experience of the malady."

In 1871 a further investigation report was issued by the *Standard L.*, for the quinquennial period 1865-70. The total deaths arising in the home bus. of the co. amounted to 1190, of which 122, or rather over 10 p.c., died from C. The deaths from heart disease considerably exceeded those from C. Sir Robert Christison says:

Some years ago an important addition was made by the directors to the general principles for regulating their practice in regard to proposers of assu. belonging to families in which C. has shown itself. This was to admit at the ordinary rate of prem. those who had lost from their immediate family two members from C., provided all personal points were favourable—a certain moderate progress in age being one of these. This principle has been acted upon for a period of 12 or 14 years, and experience has shown hitherto that it is a safe one. There must have been well-nigh 130 such cases admitted; and it is very remarkable that only one of these has come as yet into the co.'s obituary list.

In 1871 the *Gresham L.* pub. the "Causes of Death" of the 2nd 1000 of its pol.-holders. These deaths occurred between the 15th July, 1866, and Nov. 1870. Those from "tubercular diseases" amounted to 156—of which Consumption claimed 145. Of these 1 died under 20; 19 between 20 and 30; 60 between 30 and 40; 34 between 40 and 50; 24 between 50 and 60; 7 between 60 and 70. The per-centage of deaths from C. was 14'5; and from all tubercular diseases 15'6, or about the same as in the previous experience [see 1868]. We must again remind our readers that the returns include some mort. from the "diseased life" class. Mr. A. H. Smee, the assistant med. officer of the Co., who compiled these, as also the former returns, now gives some interesting details:

Tubercular diseases (*i.e.* Consumption), it will be observed, have a very definite distribution. The deaths from this cause are most severe in West Germany, in which agency the deaths amount to 28 p.c. of the whole number; Bavaria, 19 p.c.; England, 17 p.c. In France and Austria the deaths are fewer in number, whilst in Italy the deaths reach the smaller number of 3 p.c.

Then the following, which lacks the precision of date over which the inquiry extended:

By permission of the Committee of the Consumption Hospital at Victoria Park, I was enabled to investigate the mort. at that inst., with reference to the influence occupation had on the production of C. I found that the in-door occupation of males appeared to produce C. to a greater degree than among female lives. Persons working under cover in open sheds and persons exposed to weather suffered much less in extent from C. than those employed in in-doors. It will be seen that death from C. took place at a later period of life among those who followed out-door employments than those who worked in overcrowded and ill-ventilated rooms.

The details are then given in the following T.

Deaths from Tubercular Disease at the Victoria Park Hosp., showing influence of Occupation:

Cause of Deaths...	Ages under:										Not stated.	Totals.
	20	25	30	35	40	45	50	55	60	65		
Female Lives. ...	45	41	25	15	12	3	1	1	...	...	...	143
In-door occupation	32	31	30	24	15	9	5	...	...	...	4	150
Mixed } Males {	10	7	7	5	4	3	4	...	...	...	1	41
Out-door } Males {	9	21	21	13	12	11	8	2	1	...	2	100
	96	100	83	57	43	26	18	3	1	...	7	434
The same reduced to a per-centage:												
Female Lives ...	32	28	18	10	8	2	1	1	...	...	...	100
In-door occupation	21	21	20	16	10	7	3	...	...	...	2	100
Mixed } Males {	24	17	17	12	10	7	10	...	...	...	3	100
Out-door } Males {	9	21	21	13	12	11	8	2	1	...	2	100
	86	87	76	52	40	27	22	3	1	...	7	400

In 1871 the *Prudential Life* pub. its mort. experience, in its industrial branch, for the years 1867-70. The number of deaths from phthisis pulmonalis—"the chief of the tubercular diseases"—is 1908 males, and 2048 females. The T. on the next page is an analysis of them.

In 1872 Dr. C. T. Williams contributed to vol. lv. of the *Medico-Chirurgical Transactions*, a paper, *On the Effects of Warm Climates on the Treatment of Pulmonary Consumption, as Exemplified by an Analysis of Two Hundred and Fifty-one Cases*. This paper is one of considerable interest. A few passages will sufficiently indicate its scope.

The writer says, "The selection of a suitable winter climate is a most difficult question in the treatment of C." He then reviews the grounds on which the selection is usually made:

1. The alleged immunity of some localities from the disease the patient is suffering from. This is certainly an *a priori* ground for recommendation; but when we come to examine the climates of the localities known to be exempt from phthisis, we are met with such a contrast of atmospheric conditions, that it is evident the immunity cannot be assigned to the influence of climate alone, but to peculiarities in the out-door life, food, and habits of the natives. What specific qualities of climate can be common to Ireland, with its ever-varying meteorology—to the cold steppes of Tartary, lying 100 feet below the level of the sea—to the lofty plateaux of the Andes, 8000 to 10,000 feet above it—and the hot Presidency of Madras? Yet all these places are free, or nearly so, from phthisis! We do not, therefore, gain much assistance in the selection of a climate from this source; though, by close imitation of the conditions under which the inhabitants of these fortunate countries live, individuals predisposed to phthisis might possibly avert its onset. On the other hand, we should not dismiss from consideration certain climates only on the ground that they are not free from phthisis; as experience has shown that this is the case even in those health resorts which have proved most beneficial to British invalids.

2. The existence in certain localities of atmospheric conditions the reverse of those under which the disease has been contracted—as a dry warm climate, when the disease has been contracted in a damp cold one; or again, a cold atmosphere of great purity, when the malady has arisen under the influences of heat and bad ventilation. This is a very reasonable ground for selection, and in the absence of better data, and with certain restrictions, a very practical one; though difference of food, variability of seasons, and individual idiosyncrasies, will sometimes upset our calculations, and turn what appeared a prob. success into an undoubted failure. [HEALTH RESORTS.]

Some interesting observations concerning C. have been recently made in the U.S. Dr. Andrews, of the Chicago Medical College, has generalized the law of the distribution of C. in the various States from the Census returns as follows: By classifying the facts stated in these returns, it appears that C. and cancer are two diseases similarly affected by and in the same regions. The laws governing their prevalence are two. 1. These two diseases are most abundant near the sea, and diminish as you recede from it. 2. At equal distances from the sea, they prevail most at the north, and diminish as you go south. For example, if you begin at Massachusetts and go westward, the proportion of deaths from C. to deaths from all causes regularly diminishes as you recede from the Atlantic. Here are the figures: deaths from C. in Massachusetts, 25 p.c.; New York, 20 p.c.; Ohio, 16 p.c.; Indiana, 14 p.c.; Illinois, 11 p.c.; Missouri, 9 p.c.; Kansas, 8 p.c.; Colorado, 8 p.c.; Utah, 6 p.c.; and then in California it increases again to 14 p.c. on account of the proximity of the Pacific Ocean. A similar decrease is observed if you go from north to south, as follows: Michigan, 16 p.c.; Indiana, 14 p.c.; Kentucky, 14 p.c.; Tennessee, 12 p.c.; Alabama, 6 p.c.

The annexed T. shows the ratio of deaths from C. to 10,000 deaths from all causes, in the several census districts of the U.S. for the year 1860; and the same as modified by sex. The results are drawn from the Census Rep.

[Prudential Life.]	Males.	Females.
Under 5 years of age	146	133
5 to 9	61	62
10 „ 14	112	125
15 „ 19	264	348
20 „ 24	294	353
25 „ 29	182	272
30 „ 34	134	172
35 „ 39	133	131
40 „ 44	149	118
45 „ 49	136	105
50 „ 54	118	81
55 „ 59	82	62
60 & upwards.	97	76
	1908	2048

DISTRICTS.	Ratio to Total Deaths		Ratio of Sexes.	
	Male.	Female.	Male.	Female.
<i>District</i> 1. Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and New York	1922	2419	1000	1258
„ 2. Michigan, Wisconsin, Minnesota, and Nebraska	1323	1780	1000	1345
„ 3. New Jersey and Pennsylvania	1700	1901	1000	1123
„ 4. Ohio, Indiana, Illinois, Iowa, and Kansas	1182	1427	1000	1207
„ 5. Delaware, Maryland, District of Columbia, Virginia, and North Carolina	1004	1391	1000	1378
„ 6. Kentucky, Tennessee, and Missouri ..	871	1245	1000	1429
„ 7. South Carolina, Georgia, Florida, and Alabama ..	402	591	1000	1470
„ 8. Mississippi, Louisiana, Arkansas, and Texas	550	583	1000	1060
„ 9. Oregon, California, Dakota, New Mexico, Utah, and Washington	1258	1136	1000	902

Of the deaths in the city of New York in 1872, there was attributed to C. 13 p.c.; and it was pointed out as remarkable that though the majority of the pop. are natives of the U.S., the natives dying from this disease were only 1461, and the foreigners were 2813, or nearly double the former number. With regard to cancer, similar proportions were obs.

It has been observed in the U.S. that the mort. from C., as shown by the Census returns, *appears to follow, in a general way, the moisture and temperature of localities.* Massachusetts is ten times as fatal to consumptives as Georgia; and Minnesota, notwithstanding all that has been said in its favour, is twice as fatal as Georgia. A damp atmosphere, with cold, and specially with variable weather, is the worst for this disease.

Returning to our own country, the independent researches of Drs. Bowditch and Buchanan have already estab. this important hygienic discovery, *that there is a decided relation of cause and effect between dampness of soil and Consumption.* Dr. Simon, the medical officer of the Privy Council, in one of his reports, says that the drying of the soil, which has in most cases accompanied the laying of main sewers in improved towns, has led to the diminution, more or less considerable, of phthisis. Here again then our chief hope lies in increasing sanitary vigilance, and the energetic adoption of efficient measures for the general improvement of PUBLIC HEALTH. [CLIMATE.] [DEATH, CAUSES OF.] [DISEASES.] [HEALTH RESORTS.] [LONGEVITY.] [OCCUPATION, INFLUENCE OF.] **CONSUMPTION,** DEATHS FROM (Class, CONSTITUTIONAL; Order, *Tubercular*).—The fluctuations in the deaths from this cause are not very great, and prob. arise not simply from the variations of seasons, but from variations in classification. The following is a return compiled from the Lond. Bills of Mort. from the earliest available period:

TABLE SHOWING THE NUMBER OF DEATHS FROM *Consumption* WITHIN THE LOND. BILLS OF MORT. FROM 1629 (WITH SEVERAL BREAKS) DOWN TO 1832:

1629	1827	1685	3502	1741	4981	1787	4579
1630	1910	1686	3569	1742	4716	1788	5086
1631	1713	1687	3473	1743	4353	1789	5172
1632	1797	1688	3867	1744	3865	1790	4852
1633	1754	1689	3981	1745	4015	1791	5090
1634	1955	—	—	1746	4887	1792	5255
1635	2080	1701	2678	1747	4560	1793	5474
1636	2477	1702	2730	1748	4487	1794	4781
—	—	1703	2831	1749	4623	1795	5733
1647	2423	1704	3013	1750	4543	1796	4265
1648	2200	1705	2784	1751	4182	1797	4767
1649	2388	1706	2716	1752	3558	1798	4533
1650	1988	1707	3049	1753	3915	1799	4843
1651	2350	1708	2796	1754	4241	1800	5721
1652	2410	1709	3040	1755	4322	1801	4695
1653	2286	1710	2706	1756	4459	1802	4078
1654	2868	1711	2520	1757	3973	1803	4076
1655	2606	1712	2551	1758	3411	1804	3447
1656	3184	1713	2745	1759	3569	1805	3432
1657	2757	1714	3029	1760	3776	1806	3996
1658	3610	1715	2842	1761	4110	1807	4964
1659	2982	1716	3189	1762	5139	1808	5220
1660	3414	1717	2764	1763	4892	1809	4570
1661	3788	1718	3106	1764	4435	1810	5427
1662	3485	1719	3206	1765	4176	1811	4754
1663	3260	1720	3054	1766	4685	1812	4942
1664	3645	1721	3188	1767	4383	1813	4736
1665	4808	1722	3107	1768	4379	1814	4829
1666	2592	1723	3352	1769	4249	1815	4210
1667	3087	1724	3371	1770	4594	1816	4272
1668	2856	1725	3240	1771	4809	1817	4200
1669	3162	1726	3764	1772	5179	1818	4242
1670	3272	1727	3340	1773	4825	1819	3839
1671	2710	1728	3491	1774	4242	1820	3959
1672	3165	1729	3544	1775	4452	1821	3639
1673	3320	1730	3728	1776	4508	1822	3608
1674	3785	1731	3425	1777	4906	1823	5012
1675	3148	1732	3719	1778	4426	1824	4980
1676	3223	1733	4601	1779	4477	1825	5062
1677	3272	1734	4139	1780	4889	1826	5290
1678	3448	1735	4064	1781	4516	1827	5372
1679	3675	1736	4554	1782	4861	1828	5213
1680	3427	1737	4441	1783	4575	1829	5251
1681	3784	1738	4326	1784	4540	1830	4704
1682	3464	1739	4429	1785	4569	1831	4807
1683	3241	1740	4919	1786	4987	1832	4499
1684	3862						

The falling off in the number of deaths recorded in the later years of this T. prob. arose from the inefficient returns sent in to the Co. of Parish Clerks, as already explained in our art. on BILLS OF MORT.

The returns obtained under the authority of the General Regis. Act relate to the whole kingdom, and discriminate between males and females. The Act came into operation in 1837; but the causes of death were not stated in the Rep. of the Reg.-Gen. until 1847, and the cause of death for each sex was only first indicated in 1848. The annexed figures are from these Reports:

TABLE SHOWING THE DEATHS FROM C. IN E. & W. FROM 1847 TO 1870.

Year.	Males.	Females.	Total.
1847	...	...	53,317
1848	24,435	27,227	51,662
1849	23,312	26,986	50,298
1850	21,614	25,000	46,614
1851	23,330	25,836	49,166
1852	23,884	26,710	50,594
1853	25,955	28,963	54,918
1854	24,206	27,078	51,284
1855	24,602	27,688	51,290
1856	23,016	25,934	48,950
1857	23,354	26,752	50,106
1858	23,516	26,926	50,442
1859	23,534	26,615	50,149
1860	23,908	27,116	51,024
1861	24,382	27,549	51,931
1862	24,210	26,752	50,962
1863	24,418	26,654	51,072
1864	25,707	27,339	53,046
1865	26,001	27,733	53,734
1866	27,192	28,522	55,714
1867	26,909	28,133	55,042
1868	25,221	26,202	51,423
1869	25,893	26,377	52,270
1870	27,025	27,206	54,231

The deaths, for instance, in 1867 were—males, 26,909; females, 28,133. Of the *males* 1379 died under the age of 5; 528 between 5 and 10; 675 between 10 and 15; 2270 between 15 and 20; 3695 between 20 and 25; 6636 between 25 and 35; 5305 between 35 and 45; 3637 between 45 and 55; 1985 between 55 and 65; 719 between 65 and 75; 72 between 75 and 85; 7 between 85 and 95; and 1 over 95. Of the *females* 1352 died under 5; 604 between 5 and 10; 1169 between 10 and 15; 3384 between 15 and 20; 4144 between 20 and 25; 7515 between 25 and 35; 5221 between 35 and 45; 2833 between 45 and 55; 1355 between 55 and 65; 468 between 65 and 75; 83 between 75 and 85; 4 between 85 and 95; and 1 over 95.

The deaths in 1858 to each million of the pop. were 2616; in 1862, 2533; in 1867, 2595. Over a period of 15 years ending 1864 they were at the rate of 2675 p. million of the pop.

C. is much more frequently a chronic than an acute disease. The mean duration of 314 cases reported by Louis and Bayle was 23 months, including extreme cases; but 162, or more than half of the cases, terminated in 9 months, and the greater proportion of them between the 4th and 9th month. By excluding those cases of these authors which terminated within 4 months, and those that exceeded 4 years, the average duration is 18 months.

CONTAGION (from *contingo*, to touch one another).—This term, as also *infection*, generally denotes the transmission of a poisonous principle. When the transmission is effected by a material substance, and is brought about by actual contact, the term *contagion* is employed—(*immediate contagion*); but when transmission is effected through the agency of the winds, and at a distance, the mode of communication is called *infection*—(*mediate contagion*). In other words, when the poisonous principle is volatile and communicable through the medium of the atmosphere, it is *infectious*; when this diffusibility is absent, it is *contagious*.—*Hoblyn*.

CONTAGIOUS DISEASES.—These are diseases which are supposed to be communicated in some or one of the modes just indicated, or by some other similar means, as by contact of clothing, etc. There is indeed the venereal and syphilitic class, which present peculiar features of their own, and these we shall speak of distinctly. Those to which we now more particularly direct ourselves are plague, smallpox, and fevers.

The medical world has been divided into two hostile camps on the question of the true nature of certain epidemics. There have been *contagionists* and *non-contagionists*; the one set alleging that plague, for example, is not, the other that it is, a contagious malady. Or the battle has raged over typhus fever with equal confidence of assertion. And this conflict of opinion will not surprise us (continues Dr. Guy), if we call to mind the curious fact that Italian physicians look on consumption as a contagious disease; or have regard to the prejudices and preconceived opinions with which Englishmen especially must approach this question. To a great mercantile nation like ours, the doctrine of contagion leads straight on to the troublesome restrictions of quarantine; and this consideration has certainly blunted the perceptive faculties of some. All, again, who are deeply interested in sanitary reform, are apt to imbibe an unconscious predilection for the doctrine that all diseases which prevail epidemically are the offspring of filth and overcrowding in the worst houses and districts of our towns; and so earnest and excited do some advocates of this doctrine become, that they deny the very existence of contagion. This extreme doctrine is rejected by all the best authorities; and the theory of contagion is now more widely and firmly held than ever. Dr. Guy adds the following by way of explanation:

Taking an epidemic to mean a disease prevailing extensively and exceptionally, it is clear that

the question of contagion can have no place in respect of some diseases so defined. There never has been a question about bronchitis, however exceptionally prevalent it may be in winter, for cold accounts for that; nor of diarrhoea in the summer months, for heat will explain that. Nor has this question arisen in reference to scurvy, for short supplies of food, or errors of diet, fully account for it. The epidemics concerning which this question of contagion has been raised are such as prevail over large tracts of country, invading first one district, or town, or village, then another, passing from one nation to another, travelling over vast continents, and crossing wide seas; in extreme cases, visiting in succession every quarter of the globe. Cholera and influenza, and the black death, answer fully to this description.

Dr. Farr, in the 2nd Rep. of Reg.-Gen. pub. 1840, writing more particularly of the smallpox epidemic of 1837-8-9, offers some interesting obs. on the subject of contagious diseases:

Smallpox is admitted on all hands to be contagious. It is communicated by inoculation, or by the inhalation of the vapour given off by a smallpox patient. The minutest particle of matter introduced into the blood acts like a ferment on the organization, reproduces all the characteristic phenomena of the disease, and leaves the survivor secure from any subsequent invasion. Will the simple principle of contagion then explain the rapid propagation of the epidemic? Not exclusively: for the disease is always contagious, and a certain number of deaths are caused by it in all seasons, and in every county of England. The facilities of intercourse, and the frequency of contact with the sick, are not greater when the disease is increasing, or is at its height, than when it is stationary or declining. . . . Five die weekly of smallpox in the metropolis when the disease is not epidemic. . . . The problem for solution is—Why do the five deaths become 10, 15, 20, 31, 58, 88 weekly, and then progressively fall through the same measured steps?

The difficulty regarding the origin of the periodical outbreaks has presented itself in the hist. of plague, and of contagious diseases of every description; but it has generally been disposed of summarily, by the hypothesis that *the disease is always introduced from without*, and spreads naturally like a conflagration. When the plague broke out, that is, became epidemic, in Cairo, the Egyptians asserted that it came from Ethiopia; when it decimated Constantinople, it was ascribed to merchandise or vessels from Egypt. Upon precisely the same grounds, it may be contended that Manchester derived the smallpox from Liverpool. The intercourse between Liverpool and Manchester is perhaps more intimate than between any two towns in Europe. The epidemic broke out early in 1837 at Liverpool, and it appeared at Manchester later in the year; was it then communicated by the pop. of Liverpool to the pop. of Manchester? It may have been so communicated. Epidemics are unquestionably transmitted from one place and people to another; but who will pretend to assert that if all intercourse had been cut off between M. and L., quarantine had been estab., and a *cordon sanitaire* had been drawn, such as was enforced in Prussia when cholera prevailed, that Manchester, with all the materials of disease in its streets, would never have suffered from an epidemic of smallpox? Isolated cases of smallpox existed all the while in Manchester; the seeds of an epidemic were there: and would not the causes which generated the epidemic in Liverpool have led to the same results in Manchester? At any rate, the evolutions of the epidemic in Liverpool could not be traced to external contagion; and the problem remains for solution.

Under EPIDEMICS the subject will present itself further to our notice.

CONTAGIOUS DISEASES, PREVENTION OF.—One of the first objects of all legis. regarding the public health has necessarily been to prevent the spread of contagious, and the recurrence of epidemic, diseases. With regard to the venereal or syphilitic class, they have long admitted of more direct treatment, and have long received practical attention towards this end. As early as 1778 there was presented to Lord Amherst, while Gov.-General of India, a Rep.: *Observations on the means of subduing and preventing Contagious Diseases, particularly in the Army and Navy*. But specific legislation, which alone could effectively deal with this branch of the subject, has been very tardy.

The law has at length taken some preventative steps. In 1864 (Palmerston-Russell administration) the first measure was passed—27 & 28 Vict. c. 85: *An Act for the Prevention of Contagious Diseases at certain Military and Naval Stations*. In 1866 (same administration) a larger and more complete measure was substituted under provisions of 29 Vict. c. 35. In 1869, by 32 & 33 Vict. c. 96, this last Act was amended, and its operations extended. The present Acts only apply to the chief naval and military stations of England and Ireland (not Scotland).

In *India* legislation had been introduced somewhat earlier; and we now learn that the Contagious Diseases Act of India, as applied to the army, succeeded in reducing the cases of disease from 369 p. 1000 in 1861, to 167 in 1867. Since the latter year the cases have again risen to 208 in the last return, owing, it is alleged, to negligence in administering the provisions of the Act. The Gov. has called the attention of the proper authorities to this fact.

It was ascertained in 1868 by the Select Committee of Lords on the Contagious Diseases Act, 1866, that during the first quarter of 1868, 1535 women had been brought under the operation of the Act at the military and naval stations. Of these only 4 needed to be proceeded against by information, and all the rest submitted themselves voluntarily. It appeared also that out of 616 women detained in the hospital at Devonport since the Act was put in force, 35 p. c. had been reclaimed and restored to honourable pursuits.—*British Medical Journal*.

We draw a later report from the *Times*, 16 July, 1872:

The deterrent effect of these Acts in preventing the demoralization of young girls and children continues as conspicuous as heretofore. During the first six months of the present year 1872, 40 young girls under 15 years of age, and a very large proportion of them under 14, found by the officers engaged in carrying out the Acts in houses of ill-fame and similar resorts in Plymouth and Devonport, have been either restored to their friends or placed in homes fit for their reception before becoming in any way liable to the operation of the Acts. The sanitary effect of the Acts has been steadily improving. For the 23 weeks of 1872 ending the 8th of June the annual ratio of seamen and marines at Devonport sent to hospital with contagious disease has been 94 p. c. of the strength; this includes cases of disease contracted by men on furlough and away from the protected districts. Excluding such cases, it has been 7½ p. c. A few years ago 14, 15, or even 20 p. c. were not uncommon ratios.

Does it not seem almost unaccountable that persons putting themselves forward as philanthropists, and otherwise friends of the human race, should ignorantly combine to prevent an extension of this most important work! The welfare not only of the present, but of all future generations, is involved in the adoption of remedial and preventive measures.

Those who desire further detailed information upon the subject may consult the following official documents :

1. Rep. of Select Committee of House of Lords, 1868.
2. Rep. of Select Committee of House of Commons, 1869.
3. Returns to an address of the House of Com. on the motion of Mr. Mitford, 1870.
4. Appendix to the Army Medical Rep. for 1869, presented in 1871.
5. Report of the Royal Commission, 1871.

In 1871 Mr. R. E. Hooppell, LL.D., read before the Meeting of the British Asso. at Edinburgh a paper: *The Statistical Results of the Contagious Diseases Acts*, etc., in which he seeks to infer, from statistical returns, which he admits are in many respects fallacious, that the tendency of legislation has been to increase the evils which before existed. This appears like an attempt to prove too much.

CONTAGIOUS DISEASES [ANIMALS] PREVENTION ACT—32 & 33 Vict. c. 70 (1869).—*An Act to Consolidate, Amend, and make Perpetual, the Acts for Preventing the Introduction or Spreading of Contagious or Infectious Diseases among Cattle or other Animals in Gt. Brit.* There have been many previous Acts, all of which have been noticed under **CATTLE, DISEASES OF**.

CONTENTMENT.—The influence of a contented mind upon the duration of human life has been the subject of much comment: particularly with writers on longevity. There can be no doubt of the influence—it is best seen in the case of annuitants. But has not Shakespeare embodied in a few lines all the elucidation necessary for our purpose?—

My crown is in my heart, not on my head;
Not deck'd with diamonds, and Indian stones,
Nor to be seen: my crown is call'd content;
A crown it is that seldom kings enjoy.—*Henry VI.*

Again :

Poor and content is rich, and rich enough;
But riches, fineless, is as poor as winter
To him that ever fears he shall be poor.

CONTINENTAL FIRE AND LIFE INS. CO.—A Co. under this title was projected in Liverpool in 1862, by a large number of promoters, but it did not go forward.

CONTINENTAL LIFE INS. CO.—Early in the present century there existed in Lond. an ins. asso. under this title. We have tried, hitherto in vain, to meet with some authentic particulars concerning it.

CONTINENTAL LIFE INS. CO. OF NEW YORK.—Founded in 1866, and has since made very rapid progress. It is now regarded as a sound and progressive Co. In 1873 it commenced bus. in Lond., and was the first Co. to make the deposit of £20,000 under the Life Assu. Cos. Act, 1870—which deposit was however immediately repaid, as the income of the Co. was over £40,000 p. a. Mr. J. E. Leyland is the Resident Man. in London. Mr. W. C. Prescott is the Foreign Sec., and is organizing other branches in Europe. The surplus assets of the Co. were stated to be £170,000 at the close of 1872.

CONTINGENCIES.—See **LIFE CONTINGENCIES**.

CONTINGENCY INSURED AGAINST.—The contingency insured against is that which forms the subject-matter of the insurance; but it may be either single or complex. It is single when it contemplates one event only, as in *Life Ins.*—where *death* is the one sole contingency. In *Marine Ins.* there is partial, as well as total, loss. In *Fire Ins.*, *Accident Ins.*, and indeed most other branches of *Ins.*, the same. Where *Life* and *Accident Ins.* are combined, then the contingency becomes complex. Custom generally defines more or less clearly the actual contingency insured against; but it is a much greater protection where the contract or pol. is made to do so. [**CONTRACT OF INS.**]

CONTINGENT.—A thing dependent on chance; something that may happen. By *contingents* we are therefore generally to understand those things which come to pass without any human forecast.

CONTINGENT ANNUITY.—If the commencement or continuance of an annuity be dependent on the happening or non-happening of any particular event, it is called a contingent annuity. If the events have relation to the duration of lives, it may be called a *contingent life annuity*.

CONTINGENT ASSURANCES.—Since *L. ins.* has been made so largely available for protecting monetary and other bus. transactions, the actuary has been called upon to solve many problems which in earlier times did not present themselves. As for instance in partnership *ins.*—where a given sum is made payable, in the event of the death of any one of a given number of partners, within a given term of partnership. So again in relation to leases for lives, and in endowment and widows' funds. Mr. David Jones, in vol. i. of his work *On the Value of Annu. and Rev. Payments*, etc., 1843, gave some useful formulæ for such purposes. These have been supplemented by Mr. Peter Hardy, Mr. Sprague, and others. In vol. vii. of *Assu. Mag.* (1858), Mr. W. Curtis Otter communicated a paper, *On the Value of Contingent Assu., with Certain Limitations*. [**CONTINGENT REVERSIONS.**]

CONTINGENT REMAINDER.—An executory remainder limited so as to depend on an event or condition, which may never happen or be performed; or which may not happen or be performed till after the determination of the preceding estate. Actuaries are not unfrequently called upon to determine the pecuniary value of such interests.

CONTINGENT REVERSIONS; CONTINGENT REVERSIONARY INTERESTS.—These frequently come before actuaries for the purpose of valuation, in view of loan, or purchase; and many difficult and complicated points are from time to time involved. Some of our most able modern actuaries have contributed formulæ in view of the solutions required.

In the *Assu. Mag.* [vol. i., pp. 16*, 151, and 287], 1851, there is a paper, *On the Contrivances required to Render Contingent Rev. Interests Marketable Securities*, wherein several solutions of Mr. Edward Sang's on several cases of this class are set forth. This paper was contributed by Mr. W. T. Thomson, and presents points of very considerable interest.

In vol. ii. of *Assu. Mag.* (1852), there is a communication from Mr. Peter Hardy, *On the Value of Contingent Rev., subject to Certain Limitations*. The author supplies a new formula.

In the same vol. of *Assu. Mag.* (vol. ii. 1852), there is a paper by Mr. Charles Jellicoe, *On the Contrivances required to Render Contingent Rev. Interests Marketable Securities*. The author says:

Be the actual practice in making purchases of this description what it may, my object is to insist upon the propriety of regarding them as investments, to be made not subject to any contingency whatever, but as securing to the holder of them, in any case, a given rate of int. so long as he retains them; and as reproducing the cap. invested when such interest shall cease to be paid or to accrue. These I believe to be the proper attributes of what are commonly called "marketable securities," for without such qualification it will generally be found that securities are not ordinarily saleable in the market.

Again:

Even to this day the value of this description of interest is sometimes given as identical with that shown by the ordinary T. of annu., especially in the case of livings: whereas the purchaser of such a property surely never contemplates the possibility of losing his cap. immediately by the death of the person whose life is concerned; nor is it easy to see why his being a clergyman makes the case any better. This error, however, is wearing out, and I believe every well-educated act. would now point to the necessity of assu. in such cases, and include the cost of it in his valuation.

In vol. v. of *Assu. Mag.* (1855), there is a contribution by Mr. Robert Tucker, *On the Value of Contingent Rev. Interests*. The author says:

It may appear, and prob. is, unnecessary to attempt to add anything to what has been so well done in this interesting subject; but considering the importance of it to actuaries of the present day, owing to the frequency with which applications for loans on rev. interests are now made to ins. offices, I have thought it may be useful once more to advert to it. I propose to work out the two cases of contingent rev. given by Mr. Jellicoe, and to append a short T. to each, showing the marketable value of such rev.,—that is, securing at the expiration of the contingency the cap. advanced, and providing in the interval for the interest stipulated for.

In the same vol. there is a further paper by the same author, *On the Methods Pursued at the Present Day for Estimating the Value of Contingent Reversionary Interests*. The author says:

The old practice of valuing contingencies by a pet T. of mort., and at one fixed rate of int., has long since been found to work unprofitably; and parties seeking investments in securities of this description have been compelled for their own safety and advantage to adjust the valuation of the Act. before determining the price to be given for the particular property under consideration. If such a state of things is unsatisfactory to the public, it must be equally so to the Act. to find his calculations used only as a partial guide, instead of being, as in fact they ought to be, the index by which a proposed purchaser may know the rate of int. and the other advantages to be derived by obtaining the security in question, at the price fixed by the Act.

If it be necessary to protect an office by paying due regard to the limit of its risks, how much more necessary is it to do this in dealing with life interests, not involving the usual considerations of average? It should be the duty of the Act. in valuing L. interests and revs. to get rid of these contingencies in each case; or at all events to point out how they may be insured, so that, after the prem. for any particular risk is provided for, there may remain to the capitalist—whether an individual or a co., it matters not—a fixed rate of int. upon the investment, as secure as in an ordinary mortgage.

In vol. x. of *Assu. Mag.* (p. 252), there is an art. by the Editor, *On the Valuation of Pol. of Assu.*, which treats (*inter alia*) "of the value of a pol. in connexion with a contingent rev." The paper is alike practical and instructive.

Under the general head of LIFE CONTINGENCIES, as also under POST OBITS, points incident to the present subject will be discussed.

CONTINUANCE AND END OF RISK.—In marine ins. questions not unfrequently arise regarding the actual continuance, or, in other words, the end of the risk. In ordinary cases the risk continues while the vessel is pursuing her voyage, and ends at the port of destination. The risk under a pol. on the outward voyage to an island or other district comprising several places of trade terminates at the port at which the vessel discharges the whole or the great bulk of her cargo. After that is effected, she is no longer covered by the outward pol. even though a portion of the outward cargo may still remain on board. When the ins. is to the vessel's "port of discharge," the risk ends at the port where she discharges or commences to discharge her cargo in accordance with the original intention of the parties concerned. When the ins. is to the vessel's "port or ports of discharge," the risk prob. ends at the last port to which she proceeds for the purpose of discharging cargo.—*Arnould; McArthur.*

CONTINUED DISEASE.—A term applied to a disease with reference to its form or type, and denoting that it runs its course without interruption of its symptoms.—*Hoblyn.*

CONTINUING CONTRACT.—The contract of life ins. is held to be a "continuing contract," subject, where the prem. has not been paid down in one sum, to one simple act of "continued performance"; but where the continued performance has been interrupted by circumstances of "*force majeure*," as warfare, or a state of siege, the pol. does not become lapsed. This was so determined by the Kentucky Court of Appeal in 1872, in the case of *New York Life Ins. Co. v. Clopton*. We shall give details of this case under WARFARE.

CONTRABAND.—Such goods as are prohibited to be imported, or exported, bought or sold, either by the laws of a particular State, or by special treaties. Also a term applied to designate that class of commodities which neutrals are not allowed to carry, during war, to a belligerent power. The term "Contraband of war" is said to have been first employed in the treaty of Southampton between England and Spain in 1625.

CONTRABAND OF WAR.—This is a term applied to designate that class of commodities which neutrals are not allowed to carry during war to a belligerent power. It is a necessary condition in marine pol. in time of war, that the ship shall not carry such prohibited goods : as she, and her cargo, thereby incur the risk of confiscation.

According to the classification of Grotius [*De Jure Belli et Pacis*, 1625], articles of commerce with reference to this subject are divisible into three classes : 1. Materials manufactured for the purpose of war, as arms and ammunition. 2. Articles of luxury. 3. Raw materials capable of being turned to the purposes of war, as sail-cloth, timber, pitch, sulphur, money, provisions, ships, hemp, cordage, etc., which, being of use both in war and peace, are frequently termed articles *ancipitis usus*.

With regard to the two former classes there never has been any doubt ; the *instrumenta belli*, which form the first class, have always been held contraband of war ; articles of luxury never. It is with regard to the 3rd class, or articles *ancipitis usus*, that the great uncertainty has prevailed ; neutral powers having uniformly contended in regard to these articles for freedom of commerce : while belligerents have insisted on the rigour of war. The criterion whereby to determine whether these articles be contraband or not, is the object for which they are destined—whether the ordinary uses of life, or military use ? If the former, they are not contraband ; if the latter, they are. It used to be that if the port were a general commercial one, it was presumed the articles were going for civil use, though occasionally a ship of war might be constructed in that port ; but if the great predominating character of the port, like Brest in France, or Portsmouth in England, were that of a port of naval equipment, it was presumed that the articles were going for military use, though possibly they might have been applied to civil consumption.

Ships, naval stores, timber, and all other materials serving directly for the purposes of ship-building, are now generally held to be contraband of war, unless excepted by particular treaties. Sail-cloth is held to be universally contraband, even when destined to ports of mere mercantile naval equipment. Tallow has been held not to be contraband, unless destined for a port, such as Brest, of mere hostile equipment. Cordage is, generally speaking, contraband ; and so are anchors, and all other *armamenta navis*. Sulphur and saltpetre, as being main ingredients of gunpowder, have been almost invariably regarded as contraband, and were admitted to be so even by the terms of the armed neutrality. Tar, pitch, and hemp, were held contraband by our Courts of Admiralty in our last French war. Provisions, generally speaking, are not contraband, especially if they are the produce of the country which exports them ; unless they are directly sent for the supply of a military force, or in relief of besieged or blockaded places. The catalogue of contraband articles has varied very greatly at different times.

Contraband articles are said to be of an *infectious nature*, contaminating whatever of the cargo and of the ship belongs to the same owner, so as to render them liable to seizure and confiscation. In ordinary cases the only loss sustained by the ship-owner, if a mere carrier of contraband articles, is the loss of freight and expenses ; unless there be fraud on the part of the ship for the purpose of protecting the contraband, by a false destination, and false papers—which will involve the ship also in condemnation.

The term contraband of war implies the existence of war. A pol., therefore, on arms and ammunition exported from Gt. Brit. to Madeira, in the dominions of Portugal, in time of peace, was held valid, notwithstanding a clause in our treaty of 1810 with that country excepting commerce in articles contraband of war.

Insurances on articles contraband of war are void in the country of the hostile belligerent, and incapable of being enforced in their Courts. If effected by or for neutrals, however, and sought to be enforced in the Court of a neutral State, the case is different. Commerce in articles contraband of war is not unlawful to a neutral subject ; and seizure and confiscation of those articles during their transit to a hostile port are not unlawful to a belligerent power. These are co-existing rights. The ins. therefore, by a neutral, of articles contraband of war being *per se* a valid contract, may be enforced in the Courts of the neutral country, provided the nature of the trade and of the goods were disclosed to the underwriters, or provided there be just ground, from the circumstances of the trade or otherwise, to presume that he was duly informed thereof.—*Arnould ; Kent ; Tudor.* [NEUTRALS.] [PROHIBITED GOODS.] [PRIZE COURTS.]

CONTRACT.—An agreement between competent parties, upon a legal consideration to do, or to abstain from doing, some act. Contracts are divided into three classes—1. Contracts of record, such as judgments, recognizances, and statutes staple. 2. Specialty contracts, which are under seal, such as deeds and bonds. 3. Simple contracts, or contracts by parol. There is no such 4th class, as contracts in writing, distinct from verbal and sealed contracts. Both verbal and written contracts are included in the class of simple contracts, and the only distinction between them is in the mode of proof. Policies of ins. are specialty contracts. Contracts are further divided into expressed, and implied: expressed, when the agreement is formal, whether written or verbal; implied, when the agreement is matter of inference or deduction.—*Wharton*. There are some other distinctions not material for our present purpose.

The Companies Act, 1867, provides that contracts by any co. regis. under the Cos. Act, 1862, may be made as follows: 1. Any contract which if made between private persons would be by law required to be in writing, and if made according to English law to be under seal, may be made on behalf of the co. in writing under the common seal of the co., and such contract may be in the same manner varied or discharged. 2. Any contract which if made between private persons would be by law required to be in writing, and signed by the parties to be charged therewith, may be made on behalf of the co. in writing signed by any person acting under the express or implied authority of the co., and such contract may in the same manner be varied or discharged. 3. Any contract which if made between private persons would by law be valid although made by parol only, and not reduced into writing, may be made by parol on behalf of the co. by any person acting under the express or implied authority of the co., and such contract may in the same way be varied or discharged. And all contracts made according to the provisions of this Act shall be effectual in law, and shall be binding upon the co. and its successors, and all other parties thereto, their heirs, executors, or administrators, as the case may be.

Every prosp. or notice inviting subscriptions for shares in any joint-stock co. must specify dates and names of parties to any contract made prior to the issue of such prospectus or notice. [PROSPECTUS.]

CONTRACT GUARANTEE CO.—Prov. regis. in 1852, with a proposed cap. of £250,000, in 25,000 shares of £10 [with power to increase to £500,000]. The project was supported by names of great respectability. Among the trustees was Mr. Coleridge J. Kennard. The prospectus set out the following details:

The object for which this Co. is incorp. is to supersede the necessity of individual security under commercial or trading contracts, by providing that of an associated body. The want of such a so. presses heavily on persons undertaking contracts, and is acknowledged by all who are acquainted with the unsatisfactory nature of existing transactions.

Contractors have generally to provide sureties for the due performance of the contracts undertaken by them. This compels a contractor to solicit his friends. . . . Or should the contractor become his own surety, he has frequently to deposit valuable securities for the purpose, possibly at considerable inconvenience and risk. Moreover, in the case of many contracts, it is required that the name of the intended sureties should be stated in the tender for the contract. . . . The consideration that the sufficiency of the bondsman himself has subsequently to be scrutinized by the other parties to the contract, frequently deters friends, however wealthy, from becoming sureties.

The advantages of such an inst. as the *Contract Guarantee Co.* must be alike apparent to both parties to a contract. On the one hand the unquestionable sufficiency of the guarantee offered under the proposed system will materially simplify and facilitate the legal and pecuniary requirements of the case; whilst on the other, the payment of a very moderate per-centage will obviate the manifold inconveniences inseparable from an attempt to induce persons to incur a risk in matters with which they have no necessary or legitimate concern.

The unequivocal success of the personal guarantee sos., after an experience of ten years, both in a social and pecuniary point of view, proves most satisfactorily that public cos. are specially adapted to meet requirements of a similar character; but it should here be observed that it is intended to guarantee the due performance of contracts for goods, works, labour, etc., etc., and not to interfere with the operations of the personal guarantee cos.

The importance of the proposed Co., and the prob. magnitude of its transactions, may be estimated from the fact that the amount of contracts for the supply of goods, materials, and stores for the erection of buildings, and for the construction of railways, docks, etc., etc., varies from 20 to 30 millions annually.

Respecting the operations of this Co., it is proposed to apply, as far as practicable, the "mut. principle" so extensively adopted, and with such satisfactory results, by many existing cos. With that view contractors are invited to join the Co. . . . It is proposed also that holders of 10 shares and upwards shall have the right of using the name of the Co. in their tenders, the Co. having the option of guaranteeing the contract in the event of the tender being accepted; and on the acceptance of the contract, it will of course be the bus. of the successful contractor to arrange with the Co. respecting the guarantee for its due performance.

Then there is an estimate of the prob. business of the Co. It might expect to guarantee 8 millions sterling annually, which at an average of 10 p. c. would produce a prem. income of £40,000. The ann. profit for the first 5 years was estimated at £5400. It was proposed to apply for a "Royal Charter of Incorp." The name of the proposed Man. of the Co. was not given.

We believe the Co. never became completely estab. [CONTRACTS, INS. OF.]

CONTRACT OF INSURANCE.—Contracts of Ins. differ in their details according to the branch of the bus. to which they relate. They have, however, one feature in common, and that is—that they must be negotiated and concluded in the utmost good faith. This is, indeed, a condition of all contracts; but it is essentially a feature of ins. contracts. What constitutes good faith in respect to contracts of this order is discussed under many

heads in this work—as CONCEALMENT; FRAUD; GOOD FAITH; MISREPRESENTATION; etc. Ins. Contracts have yet another feature in common—they must be explicit. If there be any ambiguity, this will most prob. be interpreted against the co. or underwriters. [CONSTRUCTION.]

We shall now pass in review the essential features of each class of ins. contracts.

Marine Ins.—The contract of marine ins. is a contract by which the insurer promises to the insured, or him who hath interest in the ship, cargo, or thing which is ins.,—for otherwise it is not an ins., but a *wager*,—to *guarantee* or *indemnify* him from all the losses and damages which shall happen thereto, without fraud or fault of the insured, by unavoidable accidents or dangers of the sea, during the voyage, or during the time of the risk, according to the tenor of the contract, or *policy*, in consideration of a sum, called *prem.*, paid by the insured to the insurer. “I offer this definition of ins. (says *Wesket*, 1781) as more adequate and complete than any I have met with; and as comprehending that of *Loecnius*, *Styppmannus*, *Stracca*, *Targa*, *Kuricke*, *Bornier*, and all the esteemed authors who have treated of it.”

Valin, in his famous *Commentaries*, pub. 1760, had previously said:—“The contract of ins. then is susceptible of all the clauses and conditions which the parties may agree to insert, provided they are not *contra bonos mores*, nor repugnant to the nature and essence of this contract, nor to public authority. As it is a contract of good faith, it must be interpreted according to received *custom*, the presumption being that the parties have *intended* to conform thereto, if there be no departure therefrom in the pol.; otherwise they must be governed by the express clauses and conditions inserted in it, without adding anything thereto by an extension of one case to another.”

We propose now to notice some of the chief phases of alteration through which the contract of marine ins. has passed.

The nature of the contract originally was that a specified voyage should be performed free from perils; and in case of accident the insurer was, for a certain price, to bear the trader harmless; hence it followed that this contract originally related to the safety of a voyage particularly described, in respect either of ship or cargo; and that the ins. could not recover beyond the amount of his real loss; therefore, without abandoning what was saved to the insurer, he could not recover the whole value except in a case of total loss. A very inaccurate *form* of this contract was anciently used among merchants and drawn by themselves. It was brought into England by persons who came from abroad and settled in Lombard Street.—*Wesket*. [POLICIES OF INS.]

Again, this same writer says:—“The terms of this contract, though very imperfectly penned, *having acquired a sense from the usage of merchants*, the form is followed to this day; and every pol. refers to those made in Lombard Street. Hence, contrary to the general rule, *parol evidence* is admitted to explain this contract, though in writing; and the words are controlled, or liberally supplied, by the intent of the agreement, the usage of merchants, and above all by judicial determinations, which are the strongest evidence of the received law of merchants. Upon these policies the *voyage*, and not the bare safety or existence of *ship or cargo*, is the subject-matter of the ins.” [VOYAGE.]

In process of time variations were made, by express agreement, from the first kind of pol. It being alleged to be troublesome to the trader to prove the value of his interest, and ascertain the quantity of the loss, *he gave the insurer a high prem. to agree to estimate his interest at a precise sum, and to give up his claim to what might be saved*; and the insured, on the other hand, waived any claims of contribution in respect of accidents which might obstruct, but not defeat, the voyage. [FREE OF AVERAGE.] To recover upon this kind of pol., the insured need only prove that he had an *interest*, *without showing the value*. [VALUED POLICIES.]

The thin end of the wedge once introduced, other innovations were pretty certain to follow. Hence it was very soon set up that it was sometimes not only highly inconvenient, but even *not proper* for the trader to disclose the *nature of his interest*; and upon this shallow plea there was introduced a still further modified pol. or contract, wherein the insurer dispensed with the necessity of the insured proving *any* interest either in ship or cargo. These pol. were known as “Interest or no Interest” pol., and speedily became so general as to require to be prohibited by special legal enactment.

It is to the introduction of these modified contracts of marine ins., severally designated “Warranted Free from Average,” “Valued Policies,” and “Interest or no Interest,” that the prevalence of the numerous *frauds* from time to time perpetrated in connexion with marine ins. may be said to date their origin. There were indeed *frauds* before, and would again be *frauds* if all these modes of ins. were for ever abolished; but it was by means of these modifications that *frauds* received something of the sanction of custom; and certainly, by means of “valued pol.,” they still continue to be too general. [GAMBLING INS.]

Marine ins. is in its origin, and in all its essential features, a *contract of indemnity*. It has been invariably so viewed by our leading Judges, from Lord Mansfield downwards. When it ceases to be so regarded, it at once sinks to the level of a contract “upon speculation”—a gambling contract capable of being, as it constantly is, converted to the basest and most inhuman purposes.

Life Ins.—Because the contract of marine ins. is essentially a contract of indemnity,

and had been so held, as we have already seen, by many learned Judges, it was attempted by less learned Judges to impart to the contract of L. ins. a similar basis. But the two contracts are in their very nature and purposes entirely dissimilar. It was in the great case of *Hamilton v. Mendes*, heard before Lord Mansfield in 1761, that the principle in regard to the contract of marine ins. being a contract of indemnity, was laid down by that learned Judge. When the famous L. ins. case of *Godsall v. Boldero* [pol. on the life of Wm. Pitt] came to be decided, in 1803, Lord Ellenborough applied the same rule of indemnity in a case where it really could not apply; but the law so erroneously laid down remained as authority until 1855—a period of more than half a century—when the case of *Dalby v. India and Lond. Assu. Co.* [pol. on the life of the late Duke of Cambridge] was decided, and the contract of L. ins. was restored to its proper footing.

An ins. upon life is a contract by which the underwriter, for a certain sum proportioned to age, health, profession, and other circumstances of that person whose life is the object of ins., engages that the person shall not die within the time limited in the pol.; or if he do, that he will pay a sum of money to him in whose favour the pol. was granted.—*Parke on Ins.*

Mr. Baron Parke said, in the case of *Dalby v. India and Lond.*, already spoken of: The contract commonly called L. assu., when properly considered, is a mere contract to pay a certain sum of money on the death of a person, in consideration of the due payment of a certain annuity for his life,—the amount of the annu. being calculated in the first instance according to the prob. duration of the life; and, when once fixed, it is constant and invariable. The stipulated amount of annu. is to be uniformly paid on one side, and the sum to be paid in the event of death is always (except when bonuses have been given by prosperous offices) the same on the other, and this species of ins. in no way resembles a contract of indemnity.

In the case of *Paterson v. Powell*, 1832, Chief Justice Tindal said: The contract of L. ins. has been defined to be that in which one party agrees to pay a given sum upon the happening of a particular event contingent upon the duration of human life, in consideration of the immediate payment of a smaller sum, or certain equivalent periodical payments, by another.

Mr. Bunyon, in his *Law of Life Ins.*, says: “Contracts of L. ins. differ very materially from marine and F. insurances, which have always been construed, in the absence of express stipulation, as contracts of indemnity.” It is due to this writer to say that he openly asserted long since, what indeed other lawyers felt, viz. that the law as laid down in *Godsall v. Boldero* was obviously erroneous.

A point arose in 1872, in the Kentucky Court of Appeals, which throws some new light upon the contract of life ins. We refer to the case of *New York Life Ins. Co. v. Clopton*. The purport of which decision is, that the contract of life ins. is a “continuing contract,” subject to no other “continued performance” than that of paying the renewal premiums (where a single premium has not been paid); and that where this one act of continued performance has been rendered impossible by reason of circumstances of warfare, or as our continental neighbours well express it by “*force majeure*,” the non-payment of premiums under such circumstances does not vitiate the contract. If this decision be upheld, it will have a most important bearing upon the position of several of the U.S. life offices.

Regarding the effect of specific conditions on the contract of L. ins., these will be spoken of under LIFE INS., CONDITIONS OF.

It will be instructive in several respects to note here the essential points of the L. ins. contract as settled by law in the U.S. of America:

1. As a general rule, and unless otherwise provided for, the laws regulating all other written contracts are applicable to and govern contracts of L. ins.
2. Unless otherwise provided for, a solicitor, broker, agent, or other third party who may be connected with the business, has no authority to bind the principal or contracting parties to make or unmake, or alter or change a contract of L. ins., any more than he would have in any other written contract.
3. The contract of L. ins. is between two parties: the insured and the insurer. The agreements of the insured are contained in the written application, and the declaration signed by the insured, and the written statements of the friend and physician signed by them; these are the basis of the agreements of the insurer, which are contained in the policy issued by the co., and signed by its officers.
4. False or fraudulent statements in regard to the application, whereby the co. is or may be deceived, vitiate the contract of ins.; and if the policy be obtained on such statements, or without paying therefore according to agreement of the party, it is void.
5. The pol. properly issued and delivered becomes a binding contract, and thenceforth its continuance as such depends on a compliance of the party insured with the terms and conditions set forth in the pol. itself, which should always be consulted to ascertain what is its real tenor or meaning.
6. A pol. assignable in its nature may be assigned or transferred absolutely or contingently, according to the agreements of the parties, with notice to and consent of the co., subject to its rules and the rules of law.
7. A pol. to a married woman on her husband's life for her sole benefit, and that of her children in case of her death, should be made in her own name, she signing the declaration and other necessary papers herself, or by some one authorized to sign her name; it then becomes hers absolutely during her life; her husband has no control over it; it can be assigned only by her with her husband's assent. If the wife dies before the husband, having children, the pol. belongs to them, as any other personal property would, and they can be divested of it only as they would of bank stock or other personal property. If the wife dies leaving no children, the pol. is governed by the laws regulating other personal property of like character left by her.
8. A creditor's policy becoming a claim is good for the amount of principal, int., and premiums paid, due to the creditor. A pol. assigned to a creditor or other party, whether absolute or conditional,

should specify the terms and conditions of the assignment; notice of a change or fulfilment of conditions should be given the co., that the rights of all parties may be secured. The true condition of an assignment should, if practicable, be stated, that it may be judged of before assented to;—the assignee becomes the member instead of the original holder. When a "valuable consideration" is mentioned, it is understood to mean an *adequate* consideration, and proof thereof is expected.

9. As contracts of the kind named, and assignments thereof, are important legal documents, no party whatever has a right to change a name, date, figure, or fact stated over another's signature without the express authority of the party, and such authority should always appear with the written paper so changed.

Fire Ins.—The contract of fire ins. is strictly one of indemnity. So unmistakably is this the case that the office may, at its own option, either restore the property destroyed, or pay the fair value thereof, as estimated by competent surveyors or assessors. Attempts have been made from time to time to enlarge the scope of this contract, under various devices,—such as the ins. of the estimated profits of brokers or merchants upon goods or produce destroyed; but the sound sense of the managers of the fire offices has shown them that, if the smallest loop-hole for gambling be permitted, fire ins. would speedily inherit some of the infirmities of marine ins., in addition to its own peculiar dangers, as they now exist. Both rent and trade profits have become the subject of fire ins. under special contract, and in a defined form—but the latter has especial elements of danger.

"Insurances against fire are contracts of indemnity."—Judgment of Exchequer Chamber in *Dalby v. India and Lond., 1855.*

A contract of fire ins. being a contract of indemnity, on which the insured is only entitled to recover the value of the property destroyed, *wilful misrepresentation of the value of the property destroyed will, under the usual conditions against fraudulent claims, defeat and vitiate the whole claim.* This was so held by Mr. Justice Willes in 1866, in the case of *Britton v. Royal Ins. Co.*

In the U.S. the contract of fire ins. is interpreted even more strictly than in Gt. Brit. [FIRE INS., PRACTICE OF.]

Accident Ins.—In this branch of bus. the contract partakes more of the nature of L. ins. contracts. The insured pays a certain prem. in relation to his occupation; and if he ins. for a sum payable in the event of death by accident, that sum must be paid, notwithstanding that he may be insured in numerous accident and life cos.,—the theory being that no precise value can be fixed upon human life. Hence, if the death be caused by the negligence of a railway co., for instance, the railway co. cannot plead, by way of abatement, that compensation has been paid by the accident co.; nor the accident co. that compensation has been received in respect of the same death by the railway co. So, in the case of compensation for non-fatal injury, if a person be insured for a compensation of £6 p. week during disablement, the co. cannot plead, in abatement of its liability, that the insured only earned £2 p. week, or nothing. The office must see to these things before they accept the risk. These are the moral hazards of the business.

Fidelity Guarantee.—The contract here is clearly one of indemnity, and must be strictly construed; for if the employer has conducted to the irregularity of the employed by omitting to apply such tests as are ordinarily employed in his particular bus., or such checks as are stipulated for in the pol., the protection of the ins. is lost.

Cattle Ins.—The contract here again falls under the principle of indemnity—with this important modification, that the office hardly ever undertakes to pay the full value of the insured stock in the event of death. The moral hazard can only be guarded against here by throwing some portion of the loss upon the insured.

Horse Ins.—The same considerations will apply as in the last case.

Hail Ins.—Here the principle of indemnity also applies, but in a modified form. The indemnity, in the case of growing crops, must not be based upon the then value. It must contemplate the value at maturity. This brings the losses into the form of *consequential damages*; and it is the only branch of ins. which admits this principle. [CONSEQUENTIAL DAMAGES.]

Glass Ins.—The contract here also is one of indemnity, and has a strict application, for the salvage is the property of the insurers. This is so indeed in marine ins. and in F. ins.; but in glass ins. the salvage frequently bears a very large proportion of the entire loss.

Steam Boiler Ins.—The contract here is simply one of indemnity. The value of the boiler and its fixings is the measure of the damage; not the stoppage of the works, or even the damage to buildings or loss of life.

Carriage Ins.—The same principle of indemnity also applies to the contract here—the co. shutting out all liability for ordinary wear and tear; and also exempting damage from kicking horses, or in attending races.

Health Ins.—Here the principle of indemnity cannot apply. The insured has to estab. his claim by proper medical testimony, and the asso. must pay. The moral hazard is very great in consequence.

In dealing specifically with each of these several branches of bus., we shall have occasion to note the peculiar incidents which surround their contracts. This is also done under distinctive heads, as CLAIMS, CONCEALMENT, CONSEQUENTIAL DAMAGES, etc., etc.

CONTRACTION (from *contraho*, to draw together).—A term for shortening of a muscle from some morbid cause.

CONTRACTS, INSURING DUE PERFORMANCE OF.—The notion of providing for the due

performance of contracts by means of ins. may seem at first sight feasible—at least to persons not practically conversant with the operations of finance. To those practically conversant with contractors and contracting, it must seem impossible that such an idea could ever have been seriously entertained.

The first definite proposal upon the subject of which we have any knowledge was that embodied in the prosp. of the *Contract Guarantee Co.*, projected in 1852; and of the objects and purposes of which we have already given a pretty complete outline. We see that this project never matured into practical shape.

The idea did not entirely die out, even on the failure of the preceding project. The orig. prosp. of the *Achilles*, 1853, contained the following:

Contract Guarantees.—The success of those cos. which have been estab. to provide a substitute for personal guarantees for fidelity is well known; but no co. at present exists securing the performance of contracts. Contractors having in most cases to provide one or more personal securities for the due performance of their engagements, frequently find it a matter, if not of much difficulty, often of serious inconvenience and annoyance, to obtain friends who will become securities for such large amounts as heavy contracts frequently involve. Besides the unpleasant necessity of a minute investigation of the commercial position and private affairs of the contractor, which the present system requires, there is attendant on it much loss of time and great risk, in case of their friends' refusal, of losing the contract altogether. Many, besides, have not the friends at hand who would oblige the contractor; and when they have, the sureties will not always be accepted by the parties requiring the work. These are only a few of the disadvantages of the present system—disadvantages felt by, and pressing upon both the contracting parties. One of the objects of this So., therefore, will be to take the place of the surety in these instances, so that any contractor of known respectability and ascertained credit may be able immediately to offer to his principal an undoubted and unquestionable security for the due performance of his contract. Parties therefore undertaking Gov. contracts, other contractors for stores, provisions, etc., contractors for railways, docks, public buildings, etc., this So. is designed to assist. The projectors contemplate, from the large and unoccupied sphere which such an inst. may reasonably hope to fill, that a great amount of success will attend this branch of the so.'s bus.

We believe the so. never did enter upon this class of bus. Indeed its orig. cap. was but £100,000, of which only a small portion was paid up. Its guarantee could not therefore have been available in any large transaction.

We assume that at some future date we may see the idea propounded anew.

It will be observed that the scheme of COMMERCIAL CREDIT INS. in some sort covered the risk of ordinary dealings between merchants and traders, but did not in any manner approach the class of contracts here contemplated.

CONTRACTS FOR REDUCTION OF SICKNESS AND MORTALITY.—In a paper read by Mr. Edwin Chadwick, C.B., before the Statis. So. in 1859, on *Results of Different Principles of Legislation and Administration in Europe; of Competition for the Field, as compared with Competition within the Field, of Service* [Statis. Journ. vol. xxii. p. 381], this writer speaks of improvements which have been effected in the hospitals of Paris by means of employing "contractors" to warm, ventilate, etc. He proceeds:

Thus such a contractor might safely contract for the attainment of some chief sanitary ends, such as the banishment of hospital gangrene. In like manner, experience under varied circumstances has already been derived to afford data for a competitor for the whole field of the service of a town to reduce its death-rate below a given average. Thus, from the banishment of typhus from old common lodging-houses, the reduction of the average of a death-rate amongst the inmates of model dwellings, from one-third above to one-third below the general average of Lond., actuaries would verify the data as safe, as a matter of bus., for competitors for the field to undertake the contract, with appropriate powers for the reduction of the death-rate in the metropolis, from 23 in 1000 to 17 in 1000. For this the million of ann. expenses from excessive sickness and death-rates would form an ample fund. An easier competition for the field of service would be the attainment of results, or the reduction of the death-rates of the Guards kept in barracks to one-half the present average; as also the prevalent sickness-rate of 40 in 1000 constantly in the hospital, and a death-rate of 20 in 1000.

He then adds, by way of note:

The principle of a contract for the attainment of results has, in effect, been applied in public administration, and has been found to work admirably. . . . Formerly, in the commencement of a system of transportation, it appeared to be a natural state of things that there should be an immense loss of life during the passage. At first, instances occurred of one-half those embarked dying and being thrown overboard during the passage; then one-third; then it was thought a great improvement was effected when only 10 p.c. were lost; and so it went on until a simple alteration was made in the contract, from the payment per head of the number embarked to the payment per head of the number landed alive. This opened the eyes of shippers to the advantages of sanitary science, and they of their own accord engaged medical men as ship surgeons, and gave them means, and an interest in its rudimentary applications. The early result was a reduction of the mort. on ship-board to little more than 2 p.c., and lastly to 1½ p.c. on extremely bad lives. Now the death of each soldier means a loss to the public of upwards of £100, and the country at least twice as much for the value of another labourer to take his place; and a reduction of the death-rate to 10 in 1000 (6 in 1000 being obtained with good lives on ship-board) would be a saving of at least 1000 p.a. on the Guards, and a reduction of the sickness rate would be equivalent to a gain of the money value of an augmentation of price to the number kept out of hospital. The £1000 capitalized at 5 p.c. would be £20,000. By a competent sanitary engineer, the structural improvements requisite for a reduction of both the sickness and death-rates might be effected generally for a third or a quarter of the capitalized amount, and sanitary arrangements might be kept in action at a considerable profit on the sickness-rate. The contract for results would of course oblige the contractor to make good the loss from every death beyond the stipulated death-rate. By such a contract the work of benevolence and patriotism would be done without either, and far more effectually. . . . By it at least one sincere mourner would be insured for every soldier who died, and an active sympathizer in case of sickness—determined to know the reason why, and to prevent its recurrence wheresoever prevention was practicable.

We have not heard of this proposition being carried into practical effect in Gt. Brit.

CONTRIBUTION.—The performance by each of two or more persons jointly liable, by contract or otherwise, of his share of the liability.

CONTRIBUTION CLAUSE [FIRE INS.].—A clause or condition introduced into *specific* fire pol. to the effect that losses are to be borne by the offices interested in the particular risk in rateable proportions to the sums ins. The following is a form frequently used :

If at the time of any loss or damage by fire happening to any property hereby ins., there be any other subsisting ins. or insurances, whether effected by the insured or any other person, covering the same property, this co. shall not be liable to pay or contribute in respect of such loss or damage more than its rateable proportion of such loss or damage.

The occasions on which this clause comes into operation will be more fully explained under SPECIFIC FIRE POL. [DOUBLE INS.]

CONTRIBUTION IN MARINE INS.—The principle of contribution as applied to marine ins. is, that those whose goods or interest in risk have been saved or benefited, by the damage, loss, or sacrifice of others, should not profit at the expense of others ; therefore those whose goods have been sacrificed or damaged, or suffered charges for the *common* good, advantage, or safety, ought to be indemnified ; and justice requires that *equality* should take place, by *contribution*, amongst all those interested, and who have been in danger of losing all, and where some have saved what was in risk, only because others have sacrificed theirs.—*vide* Civil Law. [AVERAGE.]

CONTRIBUTION INS. ASSO.—Nearly all the earlier L. and F. ins. asso., as also Apprenticeship, Birth, and Marriage ins., were formed upon the principle of *mutual contribution*. There was wisdom in the plan, to this extent : there being, generally speaking, no precise knowledge as to the *cost of the risk*, all the persons entered upon what they supposed to be an equal footing, and agreed to contribute in the proportions, and accept the advantages, laid down by the founders of the particular scheme into which they entered. If it be asked where was the certainty,—that important element in the contract of ins.,—it must be answered that it did not exist. 1000 persons agree to form a Mutual Contribution L. Ins. Asso., and to contribute £1 each on the death of every member. The family of the first member who dies receives £999 if they all contribute ; the family of the second who dies only £998, unless some one shall have taken the place of him who first died. The amount for each would be reduced one as the numbers became reduced, unless, as we have said, vacancies were supplied. But then came the question of withdrawal of members—how was that difficulty to be overcome ? It could not be overcome ; and hence, if any sudden panic arose, the asso. became dissolved by the flying off of the individual atoms which composed it. Yet we must always remember that the *Amicable* So., which existed during a period of a century and a half, down indeed to our own time, was founded on the principle of mutual contribution. The early F. offices—as, for instance, the *Hand-in-hand*, still existing—were founded on a like basis.

The early fire offices indeed found the plan very well suited to their circumstances. A small deposit was paid on entering, and ann. afterwards, and all that was required beyond was obtained by a general contribution from the members for the time being. The same method is still employed in those ancient cities of Europe which boast of municipal ins. and a fire caisse.

All mut. ins. asso. are but an extension of this principle, modified by or in the light of past experience. In the mut. L. offices, such an ann. contribution is taken in the shape of prem. as is found sufficient to secure the integrity of the asso. ; but if any deficiency should arise, all the members must contribute *pro rata* to make it good. In regard to *Fire* offices, all those orig. founded upon this plan have so modified their constitutions or practice as to overcome the element of danger. There are no new mut. fire ins. asso. founded in this country. In the U.S. there have unfortunately been many, and their career appears to have been disastrous. What is the excuse for uncertainty when certainty can be obtained at the present rate of fire ins. prems. ? There are still a great many *marine* ins. asso. founded in Gt. Brit. upon the mut. contribution plan. These we propose to speak of fully under MARINE INS. CLUBS. [FIRE INS., HIST. OF.] [LIFE INS., HIST. OF.]

CONTRIBUTION PLAN OF BONUS [DIVIDENDS].—The L. ins. asso. of the U.S. almost invariably ascertain their surplus by means of the “Contribution Plan of Dividends.” We propose to explain and discuss this fully under head of SURPLUS.

CONTRIBUTORY.—A person liable to contribute to the assets of a joint-stock asso. in the event of the same being wound up ; or entitled to participation in assets after the claims of creditors have been discharged. Hence the much-dreaded position of Contributory does not necessarily involve a pecuniary disadvantage ; where the shareholder has paid in full, and the co. is “limited,” it cannot be so, but, on the contrary, may imply an advantage, inasmuch as he will be entitled to contribution from members who have paid up a smaller proportion of cap.

The Cos. Act, 1862, defined the legal position of a Contributory—clauses 74 to 78. For our present purpose we need only quote the first of these :

74. The term “Contributory” shall mean every person liable to contribute to the assets of a co. under this Act, in the event of the same being wound up. It shall also, in all proceedings for determining the persons who are to be deemed contributories, and in all proceedings prior to the final determination of such person, include any person alleged to be a contributory. [MEMBER.]

CONTUSIONS, DEATHS FROM (Class, VIOLENT DEATHS ; Order, *Accident or Negligence*). See FRACTURES.

CONVALESCENCE (from *convalesco*, to grow strong).—The state of recovery ; the period between the termination of a disease and complete restoration to health. [CONANESCENT.]

CONVERSION TABLES.—Tables for facilitating the labours of the Actuary, by showing at sight the single or ann. prem. which represents the value of the annu. in life ins. transactions. The uses of these tables have already been spoken of in our art. ACTUARIAL T.

In 1850 Mr. Wm. Orchard pub.: *Single and ann. prem. for every value of Annu. on single or joint lives or survivors adapted to any T. of Mort.* at $2\frac{1}{2}$, 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, 5, 6, 7 p.c.; also a T. for the formation of half-yearly and quarterly assu. prem. Second issue, with preliminary notice by Mr. Peter Gray, 1856.

In 1850, also, Mr. Wm. Wood, F.I.A., then Sec. of *Scottish Amicable*, pub.: *Conversion T., showing the single and ann. prem. for assu. payable on the extinction of any single life, or of any joint lives, or of the longest of any two or more lives, deduced from the values of L. annu. at various rates of int.*

In regard to the circumstance of the appearance of T. for a like purpose by two authors during the same year, we may take the following note from Mr. Gray's "preliminary notice" to the second issue of Orchard, 1856:

Singularly enough, at the meeting of the Inst. of Act. next succeeding that at which Mr. Orchard presented a description and specimens of his T., there was exhibited in print a copy of "Conversion T., by Mr. Wood, F.I.A., Sec. to the S. Amicable L. Assu. Co." The object of Mr. Wood's T. was precisely the same as that of Mr. Orchard's. The idea on which they are founded also is the same; but it is carried out by Mr. Wood in a different way, and is applied by him to fewer rates of int., while his results are presented in certainly a much less convenient form.

CONVEYANCE.—An instrument or deed which transfers property from one person to another. All such instruments or deeds must be properly stamped, or they cannot be produced in evidence. The *ad valorem* stamp duty is 10s. per £100 of purchase-money, with fractions for lower amounts.

CONVICTS, MORT. AMONG.—See PRISON LIFE, MORT. AND SICKNESS RESULTING FROM.

CONVOY.—Ships of war which accompany merchantmen in time of war, to protect them from the attacks of the enemy. The subject has a very practical and important bearing upon marine ins.; and in time of war (as indeed in time of peace as to certain seas infested with pirates) one of the warranties required by the underwriter from the owner is that the vessel will not sail without convoy. Hence "Warranted to sail with Convoy."

In times of hostility between maritime states, ships of war are appointed by Gov. or by the Commander-in-Chief, on particular stations, to escort or protect the merchant ships proceeding to certain ports.

Individuals have not always been left to themselves to judge of the expediency of sailing with or without convoy—apart from the stipulation of the underwriter. The Gov. of most maritime states have thought proper, when they were engaged in hostilities, to oblige their subjects to place themselves under an escort of this sort, that the enemy might not be enriched by their capture. Acts to this effect were passed in this country during the American War of Independence, and the subsequent French war. The last of these Acts—43 Geo. III. c. 57 (1803)—enacted that it should not be lawful for any ship belonging to any of His Majesty's subjects (except as therein provided) to depart from any port or place whatever unless under such convoy as should be appointed for that purpose. The master was required to use his utmost endeavour to remain with the convoy during the whole voyage, or such part thereof as it should be directed to accompany his ship, and not to separate therefrom without leave of the commander, under very heavy penalties. And in case of any ship departing without convoy, contrary to the Act, or wilfully separating therefrom, *all ins. on the ship, cargo, or freight, belonging to the master or any other person, directing or privy to such departure or separation, were rendered null and void.*

All the early Convoy Acts are, we believe, now expired.

Where sailing or departing with convoy is made a condition in the pol., it, like all other warranties in a pol., must be *strictly* performed. And if a ship, warranted to sail with convoy, sail without it, the pol. becomes void, *whether this be imputable to any negligence on the part of the ins., or the refusal of Gov. to appoint a convoy.* The law-books swarm with cases arising out of questions of convoy.

There are five things essential to sailing with convoy—1. It must be with a regular convoy, under an officer appointed by Government. 2. It must be from the place of rendezvous appointed by Government. 3. It must be a convoy for the voyage. 4. The master of the ship must have sailing instructions from the commanding officer of the convoy. 5. The ship must depart and continue with the convoy till the end of the voyage, unless separated by necessity.—*Abbott on Shipping.*

With respect to the 3rd of these conditions, we may observe that a warranty to sail with convoy generally means a convoy *for the voyage*; and it is not necessary to add the words "for the voyage" to make it so. Neither will the adding of these words in some instances make the omission of them in any case the ground of a different construction. A warranty to sail with convoy does not, however, uniformly mean a convoy that is to accompany the ship the entire way from the port of departure to the port of destination, but such convoy as Government may think fit to appoint as a sufficient protection for ships going the voyage insured, whether it be for the whole or only a part of the voyage.—*McCulloch's Com. Dict.* [SAILING INSTRUCTIONS.]

In the case of *Victorin v. Cleave* the plaintiff insured on goods in the John and Jane, from Gottenburg to London, with a *warranty to depart with convoy from Fleckery*. In July, 1744, the ship sailed from Gottenburg to Fleckery, and there she waited for convoy two months. On the 21st Sept. at nine in the morning, three men-of-war, with 100 merchant ships in convoy, stood off Fleckery, and made a signal for the ships there to come out; and likewise sent in a yaul to order them out; there were 14 ships waiting, and the John and Jane got out by one o'clock, being one of the first. The convoy having sailed gently on, and being two leagues ahead: (it was a hard gale). She, by six in the afternoon, came up with the fleet, but could not get to either of the men-of-war for *sailing orders*—on account of the gale of wind. It was stormy all night, and at daybreak the ship in question was in the midst of the fleet, but the weather was so bad that no boat could be sent for sailing orders. A French privateer had sailed amongst them all night, and on the 22nd, it being foggy, attacked the John and Jane about 2 p.m., who kept up a running fight till dark, which was renewed the next morning, when she was taken. For the defendant it was insisted that this ship was never under convoy, nor is ever considered so till they have received *sailing orders*; and if the weather would not permit the captain to get them, he should have gone back. But the Chief Justice and jury were both of opinion that as the captain had done everything in his power, it was a departing with convoy: "these agreements are never confined to precise words; as in the case of departing with convoy from Lond., when the place of rendezvous is Spithead, a loss in going thither is within the pol." The plaintiff recovered.—*Weskett*.

In an action on a pol. in 1747, the ins. was from Lond. to Gibraltar, "warranted to depart with convoy." It appeared there was a convoy appointed for that trade to Spithead, and the ship Ranger, having tried for convoy in the Downs, proceeded to Spithead, and was taken in her way thither. The insurers insisted that this being the time of a French war, the ship should not have ventured through the Channel, but have waited in the Downs for an occasional convoy; and many merchants and office-keepers were examined to that purpose. But the Chief Justice held that the ship was to be considered as under the defendants' ins. to a place of *general rendezvous*, according to the interpretation of the words "warranted to depart with convoy"; and if the parties meant to vary the ins. from what is commonly understood, they should have particularized her departure with convoy from the Downs. Verdict for the plaintiff.

Without following up a subject, which happily has no immediate significance, in too much detail, we may note a few add. points drawn from well-known cases.

In *Cohen v. Hinckley*, 1808, it was held not to be sufficient to sail with a convoy appointed for another voyage, though it may be bound upon the same course for great part of the way. Also (in some cases) if a convoy has sailed, a ship cannot legally endeavour to overtake it.

In the case of *Hinckley v. Walton*, 1810, it was held that a ship cannot legally proceed without convoy, unless she has attained a license to sail without convoy.

In the case of *Wake v. Atty*, 1812, it was held that in order to show that a voyage without convoy from a foreign port was illegal, it was incumbent on the underwriter to prove that there was convoy occasionally appointed from that port, or some one resident there authorized to grant licenses to sail without convoy.

In the case of *Laing v. Glover*, 1813, it was held that a vessel which sails with convoy, and is driven back by weather into her port of clearance, may lawfully sail thence again with her cargo on the voyage, without waiting for the next convoy from the same port, or joining convoy from another port.

In *Sanderson v. Busher*, 1814, it was held that a bill of lading, signed by the captain, stating the ship to be bound to the port of destination with convoy, amounts to an undertaking, binding on the owner, that the ship shall sail with convoy.

In *Park v. Hammond*, 1815, it was held: where there are no convoys appointed at the port from whence the ship commences her homeward passage, she is not bound to call for convoy at a port in the course of the voyage, from which convoys are appointed.

In 1811 there was pub. in Lond. by Richard Hall Gower, *Remarks relative to the Danger attendant on Convoys; together with a Proposition for the better Protection of Commerce from Sea Risk and Capture*.

Nearly all the writers on marine ins. treat of convoy.

CONVULSION (from *convellere*, to pull together).—Violent, irregular contraction of the muscles of animal life, or those of voluntary motion, with alternate relaxations, commonly called a fit. [SPASM.]

CONVULSIONS, DEATHS FROM (Class, LOCAL; Order, Diseases of *Nervous System*).—The deaths from this cause in England, although numerous, show but very slight fluctuations. In ten consecutive years they were as follows: 1858, 25,488; 1859, 25,954; 1860, 25,205; 1861, 25,423; 1862, 25,286; 1863, 26,008; 1864, 26,382; 1865, 26,722; 1866, 27,431; 1867, 26,358. Over a period of 15 years ending 1864, the average deaths have been 1313 to each million of the pop. living.

The deaths in 1867 were: males, 14,807; females, 11,451. Of the males 14,555 died under 5; the remainder being distributed pretty equally over the various ages of life. Of the females 11,159 died under 5; and then as the males.

CONYERS, T. G., was Sec. of *Crown* from 1828 down to 1853. The orig. D. of Sett. of the Co. provided as follows:

15. That there shall be a Sec. and Cashier of the said So., and Thomas Gooden Conyers, of Camberwell, in the County of Surrey, shall be the present Sec. and Cashier; and the Sec. for the time being may be dismissed from such office by a majority of at least three-fourths of the votes of an extraordinary general board of directors, specially called, subject to the proceedings of that court being confirmed by a like majority, at a subsequent extraordinary gen. board of directors specially called for that purpose within 14 days after the first board; and in case the Sec. should be so suspended, the board of directors may deduct a rateable portion of his salary; and that the duty of the present and future Sec. and Cashier for the time being shall be to attend all general and special general meetings of the proprietors for the time being, and all board and other meetings of the directors for the time being, and to take minutes of all proceedings at such meetings, and to assist in the correspondence on behalf of the So., and to perform such other bus. as the directors for the time being may from time to time require.

COODE, GEORGE, known to the ins. world as the compiler of a *Rep. on Fire Ins. Duties*, made in 1856, to the then Chancellor of the Exchequer, Sir George Cornewall Lewis. Mr. Coode reported very strongly in favour of a retention of the then iniquitous duty on fire ins. His main argument was, indeed, that any considerable reduction of the duty would not lead to such an extension of F. ins. as to recoup the Exchequer. With a view to maintain this position, he entered upon a lengthened line of argument based upon the results of former reductions. His arguments will be noticed in some detail under **FIRE INS. DUTIES**. Mr. Samuel Brown analyzed Mr. Coode's Rep. in a paper in *Assu. Mag.* [vol. vii. p. 259], *On the Progress of Fire Ins. in Gt. Brit. as compared with other Countries*; and pointed out an error into which Mr. Coode had fallen, which militated a good deal against the force of his arguments.

In 1863 Mr. Coode pub. a revised ed. of his Rep., and acknowledged the error which Mr. Brown had pointed out. From an historical point of view this Rep. embodies many matters of interest.

COOK, ARTHUR J., Sec. of *Victoria Life* since 1867. Mr. Cook held a confidential position in the *Unity F.* and *Unity General Life* from 1860 to 1863. On the trans. of the bus. of the last-named co. to the *Briton*, he held a similar position, as short-hand amanuensis, and confidential clerk. Mr. Cook is an industrious contributor to current ins. literature; and we observe is announced as one of the "Principaux Collaborateurs" on the staff of the *Moniteur des Assurances*, Paris. Mr. Cook has rendered very essential service to the asso. of which he is now the principal officer.

COOK, WILLIAM, was formerly Sec. of Lond. branch of *Scottish Equitable*, from which position he retired in 1856.

COOKE, G. W., Man. Lond. branch of *West of England* since 1864. Mr. Cooke was trained to ins. bus. in the *Globe*, which office he entered in 1847.

COOKE, JOHN, was Act. and Sec. of *Aegis L.* during 1848-9. In 1850 he became Act. of *United Kingdom Mut. Annu.*, and remained in that position until the asso. passed out of existence in 1854.

COOKE, WILLIAM HENRY, Sec. of *National Funds* under its present and former title since 1871. Mr. Cooke was trained to ins. bus. in the *North of England Ins. Co.*, which office he entered in 1854. He afterwards became its Resident Sec. in Lond. In 1858 he became Superintendent of Agents in E. and W. for the *Northern*, from which position he retired in 1863, and did not accept any fresh engagement until he entered upon his present one. Mr. Cooke is pleasantly remembered by many of the provincial agents with whom his earlier duties brought him in contact.

COOKING ACCOUNTS.—In relation to the accounts of ins. asso. founded under the Joint-Stock Cos. Regis. Act, 1844, there were a great many charges of "Cooking Accounts"—a term first employed in relation to the accounts of railways. We do not know if any, or what amount of, cooking may be practised under the L. Assu. Cos. Act, 1870; but we venture to think that, if attempted, the result attained will not justify the labour bestowed on the process. Honesty in accounts is by a long way the *best policy*.

COOLIES, INS. OF.—See **SLAVES, INS. OF.**

COOPER, HENRY, M.D.—Read before the Statistical Section of the British Asso. at Hull in 1853, a paper: *On the Cholera Mort. in Hull during the Epidemic of 1849*; and on the same occasion a further paper: *On the Relative Prevalence of Diseases in Hull, and the Effect of Seasons on Disease*. [**CHOLERA.**] [**DISEASE.**] [**HULL.**] [**SEASONS.**]

COOPER, JOHN, Man. and Act. *Manchester Provident* since 1868. Was for some years previously chief clerk of the Treasury of British Columbia.

COOPER, THOMAS, was Assistant Act. of the *Equitable* for some years, in the earlier period of its history.

COOPER, T. H., was Act. and Sec. of *Absolute L.* in 1856.

COOPERAGE OF CARGO.—A charge incident to marine ins., and for which underwriters become under certain conditions liable.

CO-OPERATIVE FIRE INS. ASSO.—This co. was regis. in 1869, but does not appear to have entered upon bus.

CO-OPERATIVE FIRE, LIFE, AND GUARANTEE INS. CO.—This Co. was projected in Lond. in 1867, with a proposed cap. of £12,000. Mr. Abm. Greenwood and Mr. Wm. Cooper were two of the promoters.

COPELAND, EDWARD, was Sec. of *Essex Economic F.*, from its commencement until 1844 when he resigned.

COPEMAN, J., was Joint Sec. of *Norwich Mut. Marine*, from its commencement down to 1854, when its bus. was discontinued.

COPENHAGEN.—The capital of Denmark, built by Waldemar I., in 1157, and became the capital in 1443. The city has suffered severely by fire, as we shall presently note; and in 1824 it suffered also severely from an inundation. Formerly a very considerable portion of the city consisted of wooden houses in very narrow crooked streets.

The Marine Ins. Ordin. of Copenhagen was first promulgated in 1683. This Ordin. was superseded in 1746, by another so framed as to be suited to form the constitution of the *Copenhagen Ins. Co.*, of which we shall presently speak. The hist. and provisions of this Ordin. will be set out in more detail under DENMARK.

On the occasion of the great fire of 19th April, 1689, at the Opera House of Amalienburg, which led to the destruction of that palace, Gottfried Fuchs, director of the apparatus at Copenhagen, introduced or first used the leathern hose invented by the Van der Heides, of Amsterdam. At any rate, says Beckman, we are told in history that in consequence of this calamity, an improvement was made in the fire estab. by new regulations issued on 23rd July, 1689; and that engines on the Dutch construction, which had been used more than 12 years in Amsterdam, were introduced.

In Copenhagen, in 1726, a co. was founded for carrying on the business of marine ins., and received a charter or grant from the then reigning sovereign of exclusive privileges against all other cos. in the kingdom of Denmark. The charter was confirmed in 1736, and renewed in 1746 in the manner already indicated.

The Deed of Co-partnership between the proprietors of the said Co. attached to the Royal Charter of 1st July, 1746, and confirmed by it, sets forth in its preamble:

We Christian VI., by the Grace of God King of Denmark and Norway, of the Goths and Vandals, Duke of Sleswig, Holstein, Stormar, and Dithmarsch, Count of Oldenburg and Delmenhorst, make known to all and every one, that the managers of the ins. co. in our capital city of Copenhagen having, in the name of the said co., humbly requested that we would be graciously pleased to confirm the agreement entered into and concluded betwixt the proprietors of the said ins. co. on the 1st March, 1726, and our dear father of blessed and glorious memory on the 20th April of the same year, and since also ratified and confirmed by us on the 21st March, 1736; but now, the better to accommodate it to times and circumstances, and the various cases, with the consent of all the sharers, we have ordered verbatim as follows.

The main provisions will be noticed in our account of the Ins. Ordinances of DENMARK.

Anderson, in his *Hist. of Commerce* (pub. 1762), says:

The King of Denmark's zeal for the prosperity of his subjects' commerce, and more especially for that of his East India Co., prompted him this year (1732) [should be 1726] to erect an ins. co. at Copenhagen, in order to save for the future their sending to Amsterdam for ins. on their ships and merchandize; the King himself first subscribing a considerable sum into this new co., which was followed by the subs. of the courtiers, merchants, and others.

Oddy, in his *European Commerce* (pub. 1805), gives the following account of this Co.:

The Sea Ins. Co. was estab. in the year 1726; its present tariff is from the year 1746. The So. has its own convention, and also that confirmed by the King. No other but this Co. is permitted to underwrite or ins. in the Danish dominions, though individuals may do this on their own account, or are permitted to ins. their property in foreign countries. Private insurances are determined according to the pol.; and where these, as well as the inaccurate law on this head, leave an uncertainty, in these cases the tariff and convention of the co. are generally resorted to as a guide. But even the convention itself being liable to imperfections, recourse must frequently be had to usage, to foreign ins. regulations, and similar estab. in other countries. The funds of the Copenhagen Ins. Co. were in the year 1798 increased to 600,000 rix dollars, in shares of 1000 each. This Co. has a number of deputies for the adjustment of averages and sea damage; others for the underwriting pol., etc.

We think it may be regarded as pretty certain that the granting of the charters to the two English Ins. Corps. in 1720, led to the idea of the estab. of this co.

This city has suffered most severely by fire on several occasions:

1689.—The beautiful palace of Amalienburg was burned, and more than 350 persons perished.

1728—1650 houses, 77 streets, 5 churches, the University, and 4 colleges were burnt to the ground.

1794—The Royal Palace, with all its valuable contents, was destroyed. Upwards of 100 lives were lost, and damage done to the amount of £4,500,000.

1795—A conflagration of 48 hours' duration destroyed the Arsenal, the Admiralty, 50 streets, and 1563 houses, being about one-fourth of the city.

1844—There was a considerable fire, of which we have no details.

There was founded here on the 11th May, 1778, the *Kyl Octroierede Assu. Co. for Varer og Effecter* (The Royal Octroied Fire Ins. Co.). This Co. has an exclusive privilege for ins. goods, furniture, and all movable property at Copenhagen, so that neither the formation of another Danish so. nor the agency of a foreign ins. co. is permitted: nevertheless some English and German sos. have agents at Copenhagen, and do a large amount of bus. A fine of 1000 rix dollars (£111 stg.), which must be paid by the insured to the above Co. in case he be found to have ins. with another office, has frequently this effect—that the fine is insured with the property; and no inquiry being allowed about the ins. except in case of fire, the fine can only then be levied.

The orig. cap. amounted to £66,666 stg., in 500 shares of £56, wholly paid up; but in 1843, when the Co. was remodelled, it was provided that of the reserve fund accumulated at that period, £44,445 should be added to the orig. cap., thus raising it to £111,111, and the value of each share to £92 10s. A further reserve fund has since been accu-

mulated. The int. paid to shareholders is 4 p.c. p.a., with a div. beyond. The expenses of management have varied from 10 to 15 p.c. on the amount of the premis. The following T., showing the transactions of the Co. during a period of 38 years, is very instructive :—

BUSINESS EXPRESSED IN POUNDS STERLING.						PROPORTIONAL REVIEW.					
YEAR.	Sums insured.	Amount of Premiums.	Claims Paid.	Dividend including Interest.	Dividend including Int. on each share.	Average prem. p.c. on sums insured.	Claims p.c. on sums insured.	Claims p.c. on Premiums.	Div. including Int. p.c. on sums insured.	Div. including Int. p.c. on Premiums.	
1815	£ 1,694,444	£ 9006	£ 301	£ 5333	£ 44/9	0'53	00'018	3'3	0'31	59	
1816	2,000,000	13,096	1348	9333	77/9	0'66	0'067	10'2	0'47	71	
1817	1,925,925	14,459	281	10,666	88/9	0'74	0'014	1'9	0'55	74	
1818	1,814,814	12,933	1696	9333	77/9	0'71	0'093	13'1	0'52	72	
1819	1,222,222	7995	4773	9333	77/9	0'65	0'391	59'7	0'76	116	
1820	1,111,111	7149	248	9333	77/9	0'64	0'022	3'4	0'84	131	
1821	944,444	5974	32	8933	74/9	0'63	0'003	0'5	0'95	150	
1822	888,888	5448	0	8266	68/9	0'61	0'000	0'0	0'93	152	
1823	833,333	5269	0	8266	68/9	0'63	0'000	0'0	0'99	157	
1824	750,000	5208	12	9333	77/9	0'69	0'001	0'2	1'24	179	
1825	861,111	5029	172	8933	74/9	0'58	0'020	3'5	1'04	179	
1826	1,000,000	5798	567	9066	75/9	0'58	0'057	9'7	0'91	156	
1827	1,000,000	5734	527	8933	74/9	0'57	0'053	9'2	0'89	156	
1828	1,055,555	5944	658	8800	71/3	0'56	0'062	1'1	0'83	148	
1829	1,055,555	6005	165	8800	71/3	0'57	0'016	2'8	0'83	147	
1830	1,111,111	5718	310	8800	71/3	0'51	0'028	5'5	0'79	154	
1831	1,148,148	5374	918	8133	67/9	0'47	0'083	17'1	0'70	151	
1832	1,222,222	5506	23	8800	71/8	0'45	0'002	0'4	0'72	160	
1833	1,305,555	5860	361	9066	75/9	0'45	0'208	6'2	0'69	155	
1834	1,277,777	5681	123	9066	75/9	0'44	0'009	2'1	0'71	160	
1835	1,333,333	5876	378	9066	75/9	0'44	0'028	6'4	0'68	155	
1836	1,355,555	6128	956	9066	75/9	0'45	0'071	15'6	0'67	148	
1837	1,622,222	7316	3456	9066	75/9	0'45	0'213	47'2	0'56	124	
1838	1,555,555	7148	271	9066	75/9	0'46	0'017	3'8	0'58	127	
1839	1,740,740	7361	4391	9066	75/9	0'42	0'252	59'7	0'52	123	
1840	1,638,888	6975	1144	9066	75/9	0'43	0'070	16'4	0'55	130	
1841	1,666,666	6645	306	9066	75/9	0'40	0'018	4'6	0'54	136	
1842	2,148,148	6774	126	10,400	81/3	0'32	0'016	1'2	0'48	154	
1843	2,250,000	7191	1414	6000	5	0'32	0'063	19'7	0'26	83	
1844	2,444,444	8231	16,874	8000	61/8	0'34	0'090	205'0	0'33	97	
1845	2,666,666	8709	1707	8533	71/2	0'33	0'064	19'6	0'32	98	
1846	2,833,335	9261	4738	8000	62/3	0'32	0'167	51'2	0'28	86	
1847	3,000,000	9899	2981	8533	71/9	0'33	0'099	30'1	0'28	86	
1848	2,972,222	9863	1628	8000	62/8	0'33	0'055	16'5	0'27	81	
1849	3,027,777	9926	7714	5333	64/9	0'33	0'255	77'7	0'17	44	
1850	3,259,259	10,535	7188	5866	48/9	0'32	0'221	68'2	0'18	56	
1851	3,333,333	11,101	6991	8000	61/8	0'33	0'210	63'0	0'24	72	
1852	3,555,555	11,775	3161	9066	75/9	0'33	0'089	26'7	0'25	77	

Examining this T., it is obvious that the average prem., which rose in 1817 to 0'74 p.c., has afterwards fallen during every year embraced in the T. Since 1825 the competition had regularly increased; and the effect of competition was to increase the sum ins. So long as the premis. remained higher than those of other cos. effecting ins. in Copenhagen, the bus. did not increase, but showed symptoms of decline. The increase of bus. dates from 1825, and especially from 1842, when a considerable reduction of prem. occurred.

The claims paid vary from 0'0 to 0'69 p.c. of sums ins., and only once exceeded the amount of premis.—in 1844, the year of their maximum. It is seen that the dividends paid to the shareholders would have been sufficient to pay all claims and man. expenses, and to accumulate a large reserve fund.

In this city there was estab. on 29th Feb. 1792 (prob. on the foundation of some earlier organization), the *Brandforsikkring for Huse og Guarde* (F. Ins. Co. for Buildings). It is a state or municipal F. ins. asso., having the exclusive right of ins. all buildings erected in the city. Another similar organization was founded at the same date for ins. of buildings in provincial towns. [DENMARK.]

In the 17 years 1827-8 to 1844 the amount ins. on town buildings in this asso. increased

from £3,122,857 to £4,457,142, or about 42½ p.c. The average losses during that period amounted to £1 16s. p. £1000, or 2s. 4d. p.c.

The accounts of the asso. for the year ending 30th Sept. 1854, showed that the risks in force amounted to £6,574,684 (being an increase over the preceding year of £155,556). The funds amounted to £173,418, being an increase of £1495. The income of the year was, from premis. £2244; from int. £7511; together, £9755. The claims were 32 in all, amounting to £4014. Of these 1 was for £2431; 1 for £697; 5 were under 3000 Rthlr. each—total £679; 25 were under 500 Rthlr. each—total £207. The sum of £2556 was paid to the Royal Committee for fire engines, etc.

The editors of *Assu. Mag.* [vol. v. p. 251], reviewing the position of this co., remark:

It is surprising that the system of mut. F. ins., limited to the buildings of a single town, still prevails on the Continent, notwithstanding that many fires of great extent have proved that such a system may for many years seem advantageous, and yet at last prove to be ruinous. The great accumulation of risks is increased by the circumstance that no other ins. of a building is allowed.

In this city they have a watch tower for fires. When a fire is discovered, its locality is telegraphed to the fire engine stations, without creating unnecessary alarm in the town. The police inquire into the cause of every fire. This inquiry is compulsory in all cases. The police collect evidence in suspicious cases, and hand it over to the criminal court. No settlement of loss takes place until these proceedings are terminated.

The births recorded in this city during the 10 years previous to 1770 amounted at an average to 2700, and the deaths to 3300. At a later obs., viz. for 3 years ending with 1818, the births had increased to 3208, while the deaths had declined to 2971.

In 1842 there was founded in this city *The L. Ins. and Annu. So.*, which appears to have made satisfactory progress. In 1854 its several funds amounted to the following sums:—Annu. branch, £261,496; widows' annu. branch, £23,581; life ins. branch, £38,386. The engagements of the co. are guaranteed by the State.

COPENHAGEN MARINE INS. ORDINANCES, 1683, 1746. See DENMARK.

COPESMATE (from the Dutch).—A merchant; a partner in merchandize.

COPPERTHWAIT, WM. CHARLES, F.S.S., Borough Bailiff of Malton, Yorks, read before the British Assn. Meeting at York, 1844, a paper: *Statistics of Old and New Malton*. [MALTON.] [MORT. OBS.]

COPYHOLDS.—A Copyhold property is subject to various charges, as ann. quit rents; fines on alienation; fines on renewal of lives; fines and heriots on death; and finally to compulsory enfranchisement. Regarding the fines and heriots accruing to the lord of the manor on death, and also for the contingency of compulsory enfranchisement, provision may be made by means of L. ins.

The *Law Property Assu. So.*, founded in 1850, devised a special scheme for undertaking, at a small ann. prem., to provide for payment of fines and heriots; also in the case of copyholds held on lives, to pay the cost of putting in new lives as any of the former should drop. The rate of prem. must necessarily vary with the circumstances of each case.

In a paper which appeared in vol. ii. of *Assu. Mag.* (1852), from Mr. Peter Gray, the subject of fines on copyhold lifehold estates is discussed, and formulæ given. In vol. iv. there is a letter from Mr. E. Ryley on the subject.

The principal Copyhold Enfranchisement Act is the 15 & 16 Vict. c. 51 (1852)—*An Act to Extend the Provisions of the Acts for the Commutation of Manorial Rights, and for the Gradual Enfranchisement of Lands of Copyhold and Customary Tenure*—amended by 21 & 22 Vict. c. 94 (1858); further amended by 31 & 32 Vict. c. 89 (1868).

Mr. Alfred Caswall has written a useful *Treatise on Copyholds and Copyhold Enfranchisement* (3rd ed. 1841); but Mr. Arthur Scratchley must be regarded as the great authority upon this subject, and he has pub. several works thereon.

CORBAUX, FRANCIS, Jun., author of the following works bearing upon ins. and kindred topics.

1. In 1812, pub. in Paris, *Essais Métaphysiques et Mathématiques sur le Hazard*.

2. In 1824, *A Further Inquiry into the Present State of our National Debt, and into the means and the prospects of its redemption, including considerations on sinking funds; on the modes of discharging or reducing debt; on the influence of a high or a low rate of int.; on foreign loans; on usury laws; on various measures of finance; and on the expediency of retaining an elevated scale of taxation. With a plan of finance for the redemption of the National Debt, upon the principle of terminable annuities. And an appendix on state lotteries, with new illustrations of the doctrine of chances. Also suggestions respecting a perpetual lottery upon a system equitable, productive, and unobjectionable, in aid of the plan of redemption.* [The greater portion of the copies of this work were burned by a fire at the printer's.]

3. In 1825, *The Doctrine of Compound Interest, illustrated and applied to Perpetual Annu., to those for terms of years certain, to life annu. and generally to prospective transactions; with new and compendious Tables solving the questions that depend on compound int., accruing ann., half-yearly, or quarterly; and other original tables, expressing with reference to comparative systems the Probabilities and the Expectations of life at each age; also the correct values of annu. on single and joint lives.* The tabular part of this work appears to have been sometimes pub. separately.

4. In 1827, *Plan d'un établissement en France; afin d'assurer, aux moindre, frais possible des dotations aux enfans à naître des mariages désignés.*

5. In 1829, in the *Phil. Mag.* (new series, vol. v.), a paper, *On the Laws of Mort. and the Intensity of Human Life.*

6. In 1833, in Lond. and Paris, *On the Natural and Mathematical Laws concerning Pop., Vitality, and Mort.; the modifications which the law of mort. receives when referred to different classes of people, and generally the movements of pop. in its progress of renewal; with tables of mort. applicable to five classes of each sex, and other tables expressing the relations of capital and income, under the operation of compound int., with fifty-four pages of interest tables printed in Lond.* [Only 250 copies printed.]

These works are fully noticed under their respective heads in these pages.

CORBETT, A. J., Joint Superintendent of Agencies of the *Crown L.* since 1858. Held a similar appointment in the *Travellers and Marine* during 1855 to 1856; then a similar appointment for English branch of *Scottish Union*, from which he retired to take his present position. He has introduced a very large bus. to his present co.

CORDAGE.—A general term for the *running rigging* of a ship, or all that part of her rigging which is employed to extend, contract, or traverse the sails; or which lies in reserve to supply the place of such as may be rendered unserviceable. The term often arises in marine pol.

CORDON SANITAIRE.—A boundary estab. for the purpose of arresting the spread of contagious diseases by preventing all contact between persons and things within such boundary and the districts external to it.

CORFIELD, T. B., Sec. of *Suffolk Alliance.*

CORK.—A flourishing mercantile city in the south of Ireland, said to have been built in the 6th century. A large part of the city was burnt down in 1621. A serious gunpowder explosion occurred in 1810. In 1762 the merchants, traders, and inhabitants of the city and county of Cork presented to the *Irish Parliament* a petition setting forth the following:

That by vesting sums of money in the hands of trustees on intermarriages, in order to make provision for widows in case they should survive their husbands, great discouragements have arisen to the trade and manufactures of the kingdom: as such money so vested cannot be employed by the husbands in their respective callings, but must lie dead in the hands of the trustees, or at most can yield to the husbands during their lives but the bare interest of the sums so vested: that the petitioners have, therefore, formed themselves into three sos. called the First, Second, and Third *Protestant Annuity Sos.* of Cork, for providing for the *widows* of the said respective Sos.; in consequence whereof several sums of money which would otherwise have laid useless in the hands of trustees are now usefully employed in the trade and manufactures of the kingdom; and the widows of several persons receive now a comfortable subsistence who must otherwise have been depending for common support upon the charity of others.

And further praying the countenance of the House in furtherance of so useful an undertaking.

It does not appear how long the said annu. sos. existed; but they have long since passed away.

In 1831 there was founded *The County and City of Cork Gen. Annu. Endowment So.* This appears to be a flourishing inst. We give an account of it under its title.

At the Meeting of the Brit. Asso. held in this city in 1843, Mr. Henry Biggs read a paper, *Report on the Sanitary Condition of Certain Parts of the City of Cork.* The writer said:

The City of Cork has been improving in a sanitary point of view for some years past. This year it is much more healthy than for many years; perhaps it may be said, much more than it was ever known in the recollection of any one now living. Disease is supposed by medical men to have decreased one-fourth, as compared with last year. Several causes have been assigned to account for this, among which are the following:

1. The opening of some confined streets and lanes, whereby fresh currents of air from the west are allowed more freely to circulate through the lower parts of the city. 2. The exertions of officers of health in some parishes, who have removed nuisances and improved the condition of narrow lanes out of doors by cleansing and whitewashing. . . . 4. Temperance . . . has no doubt greatly tended to diminish the causes of disease, and greatly increase the comfort and order of the lower classes and their families within doors. 5. A better and more abundant supply of pure water. . . . 6. The erection of new and improved dwelling houses.

Under the head of "Causes of a permanent nature which induce health in Cork," he enumerates:

1. Rain falls in large quantities in Cork, which although it makes it appear more dirty, really cleanses every part of the city. 2. Drainage is of a superior and large kind, from the circumstance of the city on its original formation having been built on the Dutch plan; every large street extending along the sides of one of those natural channels which intersect the flat of the city in every direction.

On the same occasion another paper was read, *Statistics of an Improved Rural District (the Parish of Kilmurray) in the County of Cork*, by Dr. D. Bullen.

CORKE, C., Sec. *Indemnity Mut. Marine.*

CORMACK, J. ROSE, was Sec. of *Volunteer Service and General L.*, from its commencement in 1861 down to 1864.

CORN MILLS, INS. OF.—See FLOUR MILLS, INS. OF.

CORNARO, LUDOVICO.—A Venetian noble, born 1467, died 1566. He was the author of several treatises upon the advantages of a temperate life, which indeed he considered to be a necessary condition to long life. We shall speak of him in detail under *LONGEVITY*. He wrote four discourses on the subject of temperance. The first he penned at the age of 83, in which he declaims, with amusing vivacity, against every species of luxury, for

"why (says he) should we coax and hug to our hearts the mortal poisons of strong drink, heating cordials, highly-seasoned soups, indigestible meats, to prepare which we see our enemy the cook for our own undoing? Why will we cram ourselves with over-stimulating food, and drive from our pillows God's choice blessing, sleep, crowding our uneasy beds with fearsome dreams, and miserable foretastes of coming illness, pain, and early death." The second treatise was composed at the age of 88. It contains directions for repairing a defective constitution. His third treatise was written when he was 91. It was called *An Earnest Exhortation to a Sober Life*. He evidently preferred the light wines of Italy and Germany; and brandied drink was offensive to him. He permitted an occasional draught (very small) of Champagne; and indeed a moderate stimulant in this form is sometimes very useful. His last composition was addressed to Barbaro, Patriarch of Aquilæ, written when he was 95. It contains a lively description of the health, vigour, and perfect use of all his faculties, which he has the happiness of enjoying, on the threshold of his 100th year. There have been older men than Cornaro, but prob. none who at so advanced an age preserved such perfect control over all his powers.

There have been several translations of Cornaro's works into English. That of 1779 may be regarded as the best.

CORNER, W. E., Man. of *Alliance Ship and Freight*, and *Thames Ship and National Ship* Ins. Asso. He was at one time underwriter for, or man. of, marine department of *Friend in Need*, etc.

CORNFIELD, R. P., was Chief Engineer of *National Boiler Ins. Co.*, 1864.

CORNISH MINERS' MALADY.—The metal miners of Devonshire and Cornwall are subject to a peculiar malady, known locally as "miners' consumption." We shall give a full account of this under MINERS.

CORONERS.—The office of Coroner is of so great antiquity that its origin is not precisely known. Coroners are mentioned in King Athelstan's Charter to Beverly, A.D. 925. King Alfred punished with death a judge who sentenced a person to execution upon the Coroner's Record, without allowing the delinquent liberty to traverse the finding. In *Magna Charta*, 1225 (c. 17), Coroners are mentioned. Coroners for every county in England were first appointed by Stat. of Westminster, 3 Edw. I. 1275. They were first appointed in Scotland in the reign of Malcolm II. about 1004.

The word Coroner signifies that this officer had to do with pleas of the Crown, and such wherein the King is more immediately concerned. We shall presently see that it was, in earlier times, among the duties of Coroners to take cognizance of felonies and misdemeanors, and to try the offenders. But by *Magna Charta*, the trying of offenders was restrained; the Coroner, however, was still competent to take cognizance of felonies and misdemeanors. This prob. led to the notion in later times that the Coroner might hold inquiries into the causes of fires.

Various appellations have been applied to the office of Coroner. In the reign of Richard I. he was styled *Coronarius*; but by *Magna Charta* and the subsequent statutes and law-books *Coronator*, or *Custos placitorum coronæ*. In the reign of Henry II. he was called *Serviens regis*; and in the Scotch Law *Crowner*: a title also sometimes used in England. We propose, for reasons which will hereafter appear, to trace the office of Coroner through our Statute Book:

The 3rd Edward I. [Statute of Westminster] c. 10 (1275), is as follows:

And forasmuch as mean persons and undiscreet now of late are commonly chosen to the office of Coroners, where it is requisite that persons honest, lawful, and wise should occupy such offices. It is provided that through all shires sufficient men shall be chosen to be Coroners of the most wise and discreet knights, which know, will, and may best attend upon such offices, and which lawfully shall attach and present pleas of the Crown; (2) and that sheriffs shall have counter-rolls with coroners, as well of appeals as of inquests and attachments, or of other things which to that office belong; (3) and that no Coroner demand nor take anything of any man to do his office, upon pain of great forfeiture to the King.

This is the entire enactment as it now stands in the statute-book, but in the following year it was supplemented by 4 Edward I. stat. 2—a stat. *De Officio Coronatoris* (1276), "of what things a Coroner shall inquire":

A Coroner of our Lord the King ought to inquire of these things, if he be certified by the King's bailiff, or other honest men of the country. *First*, he shall go to the places where any be slain, or suddenly dead or wounded, or where houses are broken, or where treasure is said to be found, and shall forthwith command four of the next towns, or five or six, to appear before him in such a place. 2. And when they are come thither, the Coroner upon the oath of them shall inquire in this manner, that is to wit: If they know where the person was slain, whether it were in any house, field, bed, tavern, or company, and who were there: Likewise it is to be inquired who were culpable either of the act or of the force, and who were present, either men or women, and of what age soever they be (if they can speak or have any discretion). 3. And however so many be found culpable by inquisition in any of the manners aforesaid, they shall be taken and delivered to the Sheriff, and shall be committed to the gaol. 4. And such as be founden, and be not culpable, shall be attached until the coming of the Justices, and their names shall be written in rolls. 5. If it fortune that any such man be slain, which is found in the fields, or in the woods, first it is to be inquired, whether he was slain in the same place or not. 6. And if he were brought and laid there, they shall do so much as they can to follow their steps that brought the body thither, whether he were brought upon a horse or in a cart. 7. It shall be inquired also if the dead person were known, or else a stranger, and where he lay the night before. 8. And if any be found culpable of the murder, the Coroner shall immediately go into his house, and shall inquire what goods he hath, and what corn he hath in his graunge; and if he be a freeman, they shall inquire how much land he hath, and what it is worth yearly; and, further, what corn he hath upon the ground. 9. And when they have thus inquired upon everything, they shall cause all the

land, corn, and goods to be valued in like manner, as if they should be sold incontinently, and thereupon they shall be delivered to the whole township, which shall be answerable before the Justices for all. 10. And likewise of his freehold, how much it is worth yearly over and above the service due to the Lords of the Fee; and the land shall remain in the King's hands until the Lords of the Fee have made fine for it. 11. And immediately upon these things being inquired, the bodies of such persons, being dead or slain, shall be buried.

In like manner it is to be inquired of them that be drowned, or suddenly dead, and after such bodies are to be seen, whether they were so drowned, or slain, or strangled by the sign of a cord tied straight about their necks, or about any of their members, or upon any other hurt found upon their bodies, whereupon they shall proceed in the form above said. 2. And if they were not slain, then ought the Coroner to attach the finders, and all others in the company. 3. A Coroner ought also to inquire of treasure that is found, who were the finders, and likewise who is suspected thereof; and that may be well perceived where one liveth riotously, haunting taverns, and hath done so for a long time: hereupon he may be attached for this suspicion by four, or six, or more pledges, if he may be found. 4. Further, if any be appealed of rape, he must be attached, if the appeal be fresh, and they must see apparent sign of truth by effusion of blood, or any open cry made. 5. And such shall be attached by four or six pledges, if they may be found. 6. If the appeal were without cry, or without any manifest sign or token, two pledges shall be sufficient. 7. Upon appeal of wounds and such like, especially if the wounds be mortal, the parties appealed shall be taken immediately and kept until it be known perfectly, whether he that is hurt shall recover or not. 8. And if he die, the defendant shall be kept; and if he recover health, there shall be attached by four or six pledges, after as the wound is great or small. 9. If it be for a maim, he shall find no less than four pledges; and if it be for a small wound, two pledges shall suffice. 10. Also, all wounds ought to be viewed, the length, breadth, and deepness, and with what weapons, and in what part of the body the wound or hurt is, and how many be culpable, and how many wounds there be, and who gave the wounds. 11. All which things must be inrolled in the roll of the Coroners. 12. Moreover, if any be appealed of any act done as principal, they that be appealed of the force shall be attached also, and surely kept in ward, until the principals be attainted or delivered. 13. Concerning horses, boats, carts, etc., whereby any are slain, that properly are called *Deodands* [DEODANDS], they shall be valued and delivered unto the towns as before is said. 14. Concerning wreck of the sea, wheresoever it be found, if any lay hands on it, he shall be attached by sufficient pledges, and the price of the wreck shall be valued and delivered to the towns. 15. If any be suspected of the death of any man being in danger of life, he shall be taken and imprisoned, as before is said. 16. In like manner huy [hue and cry] shall be levied for all murders, burglaries, and for men slain, or in peril to be slain, as otherwise is used in England, and all shall follow the huy and steps, as near as can be; and he that doth not, and is convict thereupon, shall be attached to be afore the justices of the gaol, etc.

Regarding the provisions of the preceding Act, that no Coroner demand or take anything for his office, it must be understood that the office of Coroner was regarded as an office of dignity and honour, similar indeed to that of sheriffs for counties in the present day.

The 31 Edward I. c. 10 (1303), provides that Coroners shall be chosen from among "sufficient men, of the most wise and discreet knights, who best know and will and can attend on such offices, and who shall lawfully attach and present pleas of the Crown." This Act was amended by 28 Edward III. c. 6 (1354).

By the 14 Edward III. stat. 1, c. 8 (1340), it is provided that "no Coroner shall be chosen unless he have land in fee sufficient in the same county, whereof he may answer to all manner of people."

The 28 Edward III. c. 6 (1354), "who shall be Coroners, and by whom and where they shall be chosen," provides as follows:

Item, it is ordained and accorded, That all Coroners of the counties shall be chosen in the full counties, by the commons of the same counties, of the most meet and most lawful people that shall be found in the said counties to execute the said office; (2) saved always to the king and other lords which ought to make such Coroners, their seigniories, and franchises.

By the 2 Henry V. stat. 1, c. 8 (1414), bearing the title "Justices shall be awarded to inquire of a riot, and of the justices' default therein," it is provided that in case of the justices' and sheriffs' default, the Coroners shall make the returns and perform the duties in relation to the bringing to punishment the offenders, which the sheriff usually performs.

The 3 Henry VII. c. 1 (1486), sets forth in a preamble very clearly the importance attaching to the office of Coroner, in view of the repression of murder and other offences against human life, and also the law upon the subject of these high crimes:

6. Item, the King remembering how murders and slaying of his subjects daily do increase in this land, the occasions whereof be divers: One, that men in towns where such murders hap to fall and be done will not attach the murderer, where the law of the land is, that if any man be slain in the day and the felon not taken, the township where the death or murder is done shall be amerced. 7. And if any man be wounded in peril of death, the party that so wounded should be arrested and put in surety till perfect knowledge be had whether he so hurt should live or die. 8. And the Coroner, upon the view of the body dead, should inquire of him or them that hath done that death or murder, of their abettors and consenters, and who were present when the death or murder was done, whether man or woman. 9. And the names of them that were present, and so found, to inrol and certify. 10. Which law by negligence is disused, and thereby great boldness is given to slayers and murderers. 11. And over this it is used, that within a year and a day after any death or murder had or done, the felony should not be terminated at the King's suit for saving of the party's suit, wherein the party is oftentimes slow, and also agreed with, and by the end of the year all is forgotten, which is another occasion of murder. 12. And also be that will sue any appeal must sue in proper person, which suit is long and costly, that maketh the party appellant weary to sue.

It is then enacted that a Coroner shall execute his office according to law. That a murderer indicted should be presently arraigned at the King's suit; a murderer acquitted, not to be set at liberty for a year and a day; an appeal might be made within a year. The Act then proceeds:

20. And if any person be slain or murdered in the day, and the murderer escape untaken, that the township where the said deed is so done be amerced for the said escape, and that the Coroner have authority to inquire thereof upon the view of the body dead. . . . 22. And that after the felony found, the Coroners deliver their inquisitions afore the Justices of the next gaol delivery, in

the shire where the inquisition is taken, the same Justices to proceed against such murderers, if they be in the gaol, or else the same Justices to put the same inquisitions afore the King in his bench. 23. And forasmuch as Coroners had not nor ought to have anything by the law for their office doing, which oft time hath been the occasion that Coroners have been remiss in doing their office. 24. It is ordained that a Coroner have for his fee, for every inquisition taken upon the view of the body slain, xiii.s. iv.d. of the goods and chattels of him that is the slayer and murderer, if he have any goods, and if he have no goods, then the Coroner have for his said fee, of such americiaments as shall fortune any township to be amerced for escape of such murderer as is aforesaid. 25. And if any Coroner be remiss, and make not inquisitions upon view of the body dead, and certify not according as is afore ordained, that the Coroner for every default forfeit to the King one hundred shillings.

This Act was in part repealed by 25 Geo. II. c. 29 (1752).

By 1 Henry VIII. c. 7 (1509), "For Coroners," it is set forth as follows :

Whereas by a stat. made at Westminster in the 3 Henry VII. it was enacted, That a Coroner shall have for his fee, upon every inquisition taken upon the view of the body slain and murdered, 13s. 4d. of the goods and chattels of him that is the slayer and murderer. 2. Where by the common law a Coroner had not or ought not to have anything for their office doing, as by the same stat. more plainly doth appear. 3. Sith which stat. so made the Coroners have used, that if any person hath happened to be slain by misadventure, and not by no man's hand, that they will not inquire upon the view of the body so by misadventure slain, except that they have for their labour 13s. 4d., which is contrary to the common law; and also the stat. afore rehearsed: Whereby great inconvenience doth daily grow to the King's subjects, forasmuch as oftentimes the person that is so by misadventure slain lyeth long above the ground unburied, to the great noyance of the King's liege people. 4. Wherefore the King our Sovereign Lord, by the assents of the Lords spiritual and temporal, and the Commons, in the present Parliament assembled, and by the authority of the same ordinance, That upon a request made to a Coroner to come and inquire upon a view of any person slain, drowned, or otherwise dead by misadventure, the said Coroner diligently shall do his office, upon the view of the body of every such person or persons, without taking any thing therefor. 5. Upon pain to every Coroner that will not endeavour himself to do his office, as afore is said, or that he taketh anything for doing of his office upon any person dead by misadventure, for every time forty shillings.

II. And that the Justices of Assizes and Justices of Peace within the county where such default of the Coroners be, have authority and power to inquire thereof, and determine the same, as well by examination as by presentment.

That is the entire enactment, which however was repealed by 25 Geo. II. c. 29 (1752).

The 33 Henry VIII. c. 12 (1541)—*The Bill for the Household*—sets forth in its preamble as follows :

Where treasons, misprisons of treasons, murders, manslaughters, and other malicious strikings, by reason whereof blood is or shall be shed, against the King's peace, have been often and many times done and committed within the limits of the King's palace or house, or other house or houses, where and when His Majesty is there demurent and abiding in his own most royal person, which offences, when they be done, be best known by His Highness' officers and ministers of his most honourable household, and by His Majesty's servants of the Chequer-roll. 2. And if His Majesty shall happen to remove from such his palace or house, or other house or houses where such offences were done, before the trial or determination thereof, then such offences might not lawfully be tried, heard, and determined by and before the said officers, but be remitted to be tried and determined by the order of the common laws of this realm. 3. By reason whereof the punishment of the said offenders in such cases hath been long delayed, and sometimes their offences forgotten and not remembered, and so escape unpunished.

For remedy whereof the different officers before whom such offences may be tried are enumerated and appointed; and it is provided (sec. 3) that all inquisitions upon persons slain within the said palaces or houses shall be had and taken hereafter for ever by the Coroner for the time being of the household of our Sovereign Lord the King, without the aid of any other Coroner. The jury to consist of 12 or more yeomen, officers of the King; "which Coroner of our said Sovereign Lord the King's household shall be from time to time named, appointed, and assigned by the said Lord Great Master or Lord Steward for the time being. The said Coroner to certify his inquisition before the same officer. It was further recited (sec. 22) that one Richard Staverton, of Lincoln's Inn, gentleman, had then for 16 years or more been Coroner of the Household. It was then enacted that he remain in his office; and that on his death his successor be appointed under the provisions of this present Act.

The 34 & 35 Henry VIII. c. 26 (1542-3)—*An Act for certain Ordinances in the King's Dominion and Principality of Wales*—recites in its preamble :

Our Sovereign Lord the King's Majesty, of his tender zeal and affection that he beareth towards his loving and obedient subjects of his dominion, principality, and country of Wales, for good rule and order to be from henceforth kept and maintained within the same, whereby his said subjects may grow and arise to more wealth and prosperity, hath devised and made divers sundry good and necessary ordinances, which His Majesty of his most abundant goodness, at the humble suit and petition of his said subjects of Wales, is pleased and contented to be enacted, etc., etc.

It is then provided as follows :

LXVIII.—*Item*. There shall be two Coroners to be elected in every of the said twelve shires, as is used in England, by virtue of the King's writ *De Coronatore eligendo*, to be awarded out of the King's Chancery of England; (2) and that the said Coroners shall have like power and authority to do and exercise their offices and have like fees as is limited by the laws and statutes of England.

LXIX. Provided always, That the writ *De Coronatore eligendo*, to choose the Coroners within the said county of Flint, shall be directed out of the Exchequer of Chester.

The 1 & 2 Philip and Mary c. 13 (1554), provides :

V. And that every Coroner upon any inquisition before him found, whereby any person or persons shall be indicted for murder or manslaughter, or as accessory or accessories to the same before the murder or manslaughter committed, shall put in writing the effect of the evidence given to the jury before him, being material. 2. And as well the said Justices as the said Coroner shall have authority by this Act to bind all such by recognizance or obligation as do declare anything material to prove the said murder or manslaughter, offences or felonies, or to be accessory or accessories to the same as is aforesaid, to appear at the next general gaol-delivery, to be holden within the county, city, or town corporate, where the trial thereof shall be, then and there to give evidence against the party so

indicted, at the time of his trial. 3. And shall certify, etc. . . . 5. And in case any Justice of the Peace, or Quorum, or Coroner shall, after the 1st day of April, offend in anything contrary to the true intent and meaning of this present Act, that then the Justices of the gaol-delivery of the shire, city, town, or place where such offence shall happen to be committed, upon due proof thereof by examination before them, shall for every such offence set such fine on every of the same Justices of Peace and Coroner as the same Justices of gaol-delivery shall think meet. . . .

This Act appears to have been repealed by 7 Geo. IV. c. 64, s. 32 (1826).

By Act of the Parl. of Ireland, 6 Anne, c. 7 (1707)—*An Act for Lessening Sheriffs' Fees on Execution*—it is recited that "through the great corruption and partiality of sub-sheriffs and their bailiffs, it had become very difficult to have any mesne process or execution duly executed, but that returns were made that the party against whom such process or execution issued was not to be found, and that he had no lands and goods, although the contrary was true," etc.; and it was enacted therefore that any such mesne process or execution might be directed to "all or any of the Coroners of the said county, who should and might execute the same without any further direction or regard to the said sheriffs," and that the Coroners should and might take such fees therefor as in this Act was appointed.

This provision, it will be seen, was repealed by an Act of the Parl. of the U.K. in 1822 (3 Geo. IV. c. 115), but was restored by the 10 Geo. IV. c. 37 (1829).

The 25 Geo. II. c. 29 (1752)—*An Act for giving a Proper Reward to Coroners for the due Execution of their Office; and for the Removal of Coroners upon a Lawful Conviction of Certain Misdemeanors*—recites: "Whereas the office of Coroner is a very ancient and necessary office," and then, after reviewing the preceding provisions for payment of Coroners, asserts that they do not afford "an adequate reward for the general execution of the said office." Coroners after 24th June, 1752, to be paid 20s. for every inquisition taken in any township contributing to the county rates (except on bodies dying in goal), and 9d. for every mile he shall be obliged to travel, to be paid out of the county rates; and for every inquisition on bodies dying in goal, as the Justices shall think fit; and for inquisition on view of body slain or murdered, 13s. 4d. in add. Any Coroner taking more than these rewards to be deemed guilty of extortion. Then:

V. Provided likewise, and be it further enacted by the authority aforesaid, that no Coroner of the King's household, and of the verge of the King's palaces, nor any Coroner of the Admiralty, nor any Coroner of the County Palatine of Durham, nor any Coroner of the City of London and borough of Southwark, or of any franchise belonging to the said city; nor any Coroner of any city, borough, town, liberty, or franchise which is not contributory to the rates directed by the said Act [12 Geo. II. c. 29], . . . shall be entitled to any fee, recompense, or benefit given to or provided for Coroners by this Act; but that it shall and may be lawful for all such Coroners as are last mentioned to have and receive all such fees, salaries, wages, and allowances as they were entitled to by law before the making of this Act, or as shall be given or allowed to them by the person or persons by whom they have been or shall be appointed.

Coroner convicted of misdemeanor in his office to be removed by order of Court before whom he shall be so convicted. This Act in part repeals the 3 Henry VII. c. 1 (1486), which prohibited remuneration to Coroners.

The same care which was shown at home in regard to the destruction of human life was apparently extended to our colonial dependencies; thus the Act for regulating the affairs of the East India Co.—the 33 Geo. III. c. 52 (1793)—recites (sec. 157): "And whereas it is expedient that Coroners should be appointed for the settlements in India for taking inquests upon view of the bodies of persons coming, or supposed to have come, to an untimely death." It is then provided that the several Presidencies may appoint Coroners, who may exercise the same powers as Coroners in England.

The 58 Geo. III. c. 95 (1818)—*An Act to Regulate the Election of Coroners for Counties*—recites: "Whereas there are no sufficient regulations for the election of Coroners for counties," and then provides that on any election of Coroner to be made, sheriffs of counties are to hold county courts at usual place. A poll may be taken. Freeholders, if required by candidates, to take oath of qualification. Expenses of sheriffs and poll clerks to be paid by candidates.

By 3 Geo. IV. c. 115 (1822)—*An Act to Regulate the Qualification of Persons holding the Office of Coroner in Ireland*—it is recited: "Whereas anciently none were chosen Coroners but persons of an estate sufficient to maintain the dignity of the office, and to answer all demands which might be made upon them for misbehaviour: and whereas for many years past the office of Coroner in Ireland has been suffered to fall into disrepute, and get into low and indigent hands." For remedy whereof it was enacted that from and after the passing of this Act, "no person shall be capable of being elected or chosen to the office of C. for any co. in Ireland, who shall not have an estate of inheritance of the ann. value of £200, or an estate of freehold for his own life, or the life or lives of some other person or persons, either at law or in equity, to and for his own use and benefit, of or in lands, tenements, or hereditaments, over and above what will satisfy and clear all incumbrances that may affect the same, lying and being within the county for which such person shall be elected or chosen Coroner, of the ann. value of £400." And if such person be not so qualified, then election to be void. This Act not to apply to Coroners "for any county if a city, or county if a town in Ireland; or to the town and liberties of Kinsale, nor to interfere with any right of appointment of Coroner given by charter to any corp. in Ireland." Coroner lawfully convicted of any extortion, or wilful

neglect of duty, or misdemeanor in his office, to be removed. This Act was in part repealed by 10 Geo. IV. c. 37 (1829) and wholly repealed by 9 & 10 Vict. c. 37 (1846).

By the 4 Geo. IV. c. 52 (1823)—*An Act to alter and amend the Law relating to the Interment of the remains of persons found Felo de se*—it is provided that it should not be lawful thereafter “for any Coroner, or other officer having authority to hold inquests, to issue any warrant or other process directing the interment of the remains of persons, against whom a finding of *Felo de se* shall be had, in any public highway; but that such Coroner or other officer shall give directions for the private interment of the remains of such person *Felo de se*, without any stake being driven through the body of such person,” etc., etc. [FELO DE SE.]

The 7 Geo. IV. c. 64 (1826)—*An Act for improving the administration of Criminal Justice in England*—repeals the provisions of the Act of Philip and Mary (1554), and provides as follows, in its stead:

IV. And be it further enacted, that every Coroner, upon any inquisition before him taken, whereby any person shall be indicted for manslaughter or murder, or as an accessory to murder before the fact, shall put in writing the evidence given to the jury before him, or as much thereof as shall be material; and shall have authority to bind by recognizance all such persons as know or declare any thing material touching the said manslaughter or murder, or the said offence of being accessory to murder, to appear at the next Court of Oyer and Terminer, or gaol-delivery, or superior Criminal Court of a County Palatine, or great sessions, at which the trial is to be, then and there to prosecute or give evidence against the party charged, and every such Coroner shall certify and subscribe the same evidence, and all such recognizances, and also the inquisition before him taken, and shall deliver the same to the proper officer of the Court in which the trial is to be, before or at the opening of the Court.

V. And be it further enacted, that if any Justice or Coroner shall offend in any thing contrary to the true intent and meaning of these provisions, the Court to whose officer any such examination, information, evidence, bailment, recognizance, or inquisition ought to have been delivered, shall upon examination and proof of the offence, in a summary manner, set such fine upon every Justice or Coroner as the Court shall think meet.

VI. And be it further enacted, that all these provisions relating to Justices and Coroners shall apply to the Justices and Coroners not only of counties at large, but also of all other jurisdictions.

By 10 Geo. IV. c. 37 (1829)—*An Act to amend the Laws relating to Coroners in Ireland*—certain provisions of the 3 Geo. IV. c. 115 (1822), regarding special functions of Coroners in Ireland, were repealed: and those functions were to be executed as defined in 6 Anne, c. 7 (1707) [Irish Acts], already quoted. It was further enacted that no person was to be entitled to vote at election of Coroner in Ireland unless entitled to vote for knights of the shire. Power was also given to Coroners to remunerate witnesses attending inquests, as the Coroner should think fit. No such payment to exceed £5. This Act was repealed by 9 & 10 Vict. c. 37 (1846).

The 6 & 7 Wm. IV. c. 86 (1836)—*An Act for Regis. Births, Deaths, and Marriages in England*—provides (sec. 25): “That in every case in which an inquest shall be held on any dead body, the jury shall inquire of the particulars herein required to be regis. concerning the death, and the Coroner shall inform the Regis. of the finding of the jury, and the Registrar shall make the entry accordingly.” Coroner may give the necessary certificate to the undertaker or officiating minister for burial (sec. 27).

The 6 & 7 Wm. IV. c. 89 (1836)—*An Act to provide for the Attendance and Remuneration of Medical Witnesses at Coroners' Inquests*—recites: “Whereas it is expedient to provide for the attendance of medical witnesses at Coroners' inquests, also remuneration for such attendance, and for the performance of post-mortem examinations at such inquests,” and then proceeds to enact, that Coroners be empowered to summon medical witnesses, and to direct the performance of post-mortem examinations. A majority of the Coroner's jury may require the Coroner to summon additional medical evidence, if the first be not satisfactory. Fees to medical witnesses [viz. £1 is. for attending to give evidence; and £2 2s. for post-mortem], to be paid out of poor-rates. No fee to be paid for post-mortem when made without order of Coroner. Medical officers of hospitals, public institutions, etc., in which death occurs not to be entitled to above fees. Medical officers neglecting to attend any inquest when summoned, to be fined £5. Act not to extend to Scotland.

In 1837 was enacted 7 Wm. IV. & 1 Vict. c. 64—*An Act for Regulating the Coroners of the County of Durham*. The then Coroners were to continue in office; powers for electing future Coroners. Coroners to be entitled to usual fees and emoluments. That part of 25 Geo. II. c. 29 (1752) relating to non-payment of Coroners of County Palatine of Durham repealed.

The 7 Wm. IV. & 1 Vict. c. 68—*An Act to provide for Payment of the Expenses of Holding Coroners' Inquests*—recites: “Whereas the holding of Coroners' inquests on dead bodies is attended with divers necessary expenses, for the payment whereof no certain provision is made by law, and such expenses have usually been discharged without any lawful authority for that purpose out of the moneys levied for the relief of the poor, and it is expedient to make adequate legal provision for the payment of such expenses.” It is then enacted that the Justices of the Peace for every county, riding, division, or district of E. and W. prepare a schedule of fees payable on holding inquests. The Coroner to pay fees to medical witnesses under 6 & 7 Wm. IV. c. 89. Coroners to lay their accounts before the sessions, and in boroughs before the town council, within four months of holding inquest. Same to be paid out of county rates or borough fund.

An add. fee of 6s. 8d. allowed under this Act. This Act is partly repealed by 9 & 10 Vict. c. 37 (1846).

By 6 & 7 Vict. c. 12 (1843)—*An Act for the more convenient Holding of Coroners' Inquests*—it is recited: "Whereas it often happens that it is unknown where persons lying dead have come by their deaths, and also that such persons may die in other places than those in which the cause of death happened. And then it is enacted that the Coroner only *within whose jurisdiction the body is lying dead shall hold the inquest*. Detached parts of counties to be included in their counties for the purposes of this Act. Then:

IV. And be it declared and enacted, that if a verdict of accidental death shall be found by the jury at any such inquest, the Coroner and jury, and the Sheriff and Court of Exchequer, and all other persons whosoever, shall have the same powers respectively with regard to the finding, returning, and levying of Deodands as they now possess in cases where the death and the cause of death happened within the same jurisdiction.

In 1843 was passed the 6 & 7 Vict. c. 83—*An Act to Amend the Law respecting the Duties of Coroners*. The preamble says: "Whereas the Coroners of boroughs and liberties are empowered and directed by law to appoint deputies to act in their stead in certain cases; and whereas the Coroners of counties have no sufficient authority of the law for making such appointments; and whereas it is expedient to prevent unnecessary expense and delay in holding of inquests in counties." It is then enacted that Coroners of counties may appoint deputies to act during illness, or absence, subject to the approval of the Lord Chancellor. Inquisitions not to be quashed on account of technical defects. Act to extend to E. and W.

The county Coroners are chosen by the vote of all the freeholders of the county. By 7 & 8 Vict. c. 92—*An Act to Amend the Law respecting the Office of County Coroner*—enacted 1844, Coroners may be appointed for districts within counties instead of the county at large.

By 9 & 10 Vict. c. 37 (1846)—*An Act to Amend the Law relating to the Office of Coroner and the Expenses of Inquests in Ireland*—it is recited: "Whereas it is expedient to amend the laws now in force in Ireland relating to the election, qualification, and payment of Coroners, and to the proceedings at coroners' inquests, and to the payment of expenses at such inquests: and whereas it is expedient that the several Acts and parts of Acts hereinafter mentioned, relating to the several matters and things aforesaid should be repealed." The Acts then repealed, wholly or partly, were 1 Geo. IV. c. 28; 3 Geo. IV. c. 115; 4 Geo. IV. c. 43; 5 Geo. IV. c. 93; 6 Geo. IV. c. 52; 10 Geo. IV. c. 37; 6 & 7 Wm. IV. c. 116; 7 Wm. IV. & 1 Vict. c. 2 (1837); 7 & 8 Vict. c. 106 (in part). Power is then given to the Lord Lieutenant to direct a special session to be held in each county for dividing the same into Coroners' districts. Present Coroners to be assigned to such districts. The qualifications for office of Coroner named in 3 Geo. IV. c. 115 (1822), were reduced to £50 and £100 respectively. Coroners to reside within their districts (s. 21). Coroners at any *post-mortem* inquest to make abstract of inquisition and finding of jury, and annex account of money paid in connexion with such inquest (s. 24). Grand juries to pass accounts. In other respects the regulations for Coroners resemble those in England. A provision of 7 & 8 Vict. c. 106, for the grand jury of the county of Dublin to allow Coroners any sum not exceeding £100 p.a., is retained (s. 47). Coroners to make ann. returns of inquests held.

By the 22 & 23 Vict. c. 21 (1859), s. 40, it is provided that recognizances forfeited at Coroners' inquests be returned to clerks of the peace, as in the case of fines imposed by Coroners.

In 1860 there was enacted the 23 & 24 Vict. c. 116—*An Act to Amend the Law relating to the Election, Duties, and Payment of County Coroners* [E. and W.]. The Act of 7 & 8 Vict. c. 92, extended to all counties, whether divided into districts or not. County Coroners to be paid by salary, instead of by fees as theretofore. The salary to be agreed upon between the Justices in Quarter Sessions and the Coroners, and may be modified:

V. If any Coroner shall refuse or neglect to hold an inquest in any case, when such inquest ought to be held, it shall be lawful for Her Majesty's Attorney-General to apply to the Court of Queen's Bench, or, during vacation, to a Judge of any one of Her Majesty's superior Courts of Law at Westminster, for a rule calling on such Coroner to show cause why he should not hold such inquest; and if, after due service of such rule, good cause shall not be shown against it, it shall be lawful for the Judge to make such rule absolute, with or without payment of costs, as to such Judge shall seem meet; and the Coroner, upon being served with such rule absolute, shall obey the same and hold such inquest, upon pain of being liable to attachment in case of refusal or neglect.

VI. It shall be lawful for the Lord Chancellor, if he shall think fit, to remove, for inability or misbehaviour in his office, any such Coroner already elected, or hereafter to be elected or appointed.

The county of Chester to be henceforth subject to the general law (s. 7).

By 23 & 24 Vict. c. 74 (1860)—*An Act to Amend the Provisions of an Act for the Regulation of Municipal Corporations in Ireland with Respect to the Appointment of Coroners for Boroughs*—it is provided that the town councils of certain boroughs therein named may respectively appoint a Coroner. There is nothing altering the duties or functions of this office.

By the 23 & 24 Vict. c. 151 (1860)—*An Act for the Regulation and Inspection of Mines*—it is provided (sec. 20) that an inquest upon the body of any person whose death may have been caused by an accident, within the scope of the provisions of that Act,

shall be adjourned, unless the inspector of the district, or some person on behalf of the Sec. of State, be present to watch the proceedings at such inquest.

The first impression which must occur to the mind—after pausing to reflect that all this mass of legislation might very readily be reduced into one simple enactment—is the evidence which is here manifested, from the earliest period of our hist., of a *sacred regard for human life*. This is a characteristic feature of our country, if not of our race; and even the known licentiousness of our Courts was curbed at least in this one particular, as shown by the Act of Henry VIII., 1541.

We now proceed to notice some points of practice.

The Coroner and his jury can only conduct their inquiry into the cause of death in view of the body (*super visum corporis*). This was very clearly expressed some six centuries ago in the Stat. of Westminster (1276). The Coroner is to inquire upon oath, and his information is to be based upon actual examination of the body, the place, and the surrounding persons. The inspection of the body is the leading idea; and wisely and properly so—for the body has in every case to be buried before legal proceedings can be developed into form. The Coroner and his jury view the body, and record their impression of its appearance so far as the cause of death may be indicated thereby. To make this portion of the Coroner's functions thoroughly efficient—and we regard it as the most important of his functions—we consider that in every case a medical practitioner should view the body, and then and there record his view of the cause of death, leaving it to be supplemented or otherwise by the finding of the Coroner's jury.

Blackstone says:—"The court of the Coroner is a court of record to inquire when any one dies in prison, or comes to a violent or sudden death, *by what manner he came to his end.*"

The late Mr. Justice Jervis, in his excellent *Practical Treatise on the Office and Duty of Coroners* (1829), says:

The Coroner's inquest is to ascertain truly the cause of the party's death, *and is rather for information of the truth of the fact, than for accusation*. It is not so much an accusation or an indictment as an inquest of office, *to inquire truly how the party came to his death*. On this account it is the duty of the Coroner to receive evidence on oath, as well on behalf of the party accused, as for the Crown; although formerly, with the exception of cases of *Felo de se*, a contrary practice prevailed.

The Coroner should have it always in his mind that the criminal aspect of the case is only one of many material points which may arise out of a death by violence, or indeed out of any sudden death. Where the finding of the Coroner's jury has been honestly arrived at, the certificate of the cause of death, as returned to the Registrar of the district (under the General Regis. Act, 1836), is sometimes of the greatest value in the case of disputed pol. of ins.

The Coroner *may*, if he thinks it conducive to justice, sit with closed doors, and this is the less open to objection, as he can only sit with a jury. In Scotland, the Procurator Fiscal can conduct his inquiries secretly, and this is often of immense importance in examining many parties implicated or suspected; for in Scotland, again, not only the *suspected*, but the *accused* may be examined, as in foreign countries; and we may well imagine that this is a very powerful engine to be employed in getting at the truth. Its efficiency, however, depends a great deal upon one person not knowing what another may have admitted. As Mr. Jardine has shown, this system of secretly interrogating the accused or suspected used to exist in this country, at all events in State prosecutions (*Criminal Trials*, vol. i.). It was grossly abused, and has long been abolished in this country, where the tendency from a natural reaction has been so strongly in favour of publicity that the advantages of secrecy are very little realized. Nevertheless, it is always in the *power* of a Coroner to examine witnesses in the presence of the jury with closed doors, and it is always in the power of a magistrate to examine witnesses *separately*, if not secretly.—*Finlason*, 1872.

We may add, by way of completing this part of our subject, that if the body be not found, the Coroner cannot sit, *except by virtue of a special commission issued for that purpose*.

The jurisdiction of the Coroner extends to all deaths occurring on the water within a line drawn from one headland to another. It would be well for our sailors if some searching inquiry could be instituted into the causes of ships so frequently sinking within sight of land, and not from the ordinarily recognized "Perils of the Sea."

Regarding the origin of the Criminal Jurisdiction of our Coroners, an able writer in the *Times*, 5 Oct. 1872, offers the following interesting and learned surmise:

It was a fundamental principle of the law of this country that no man could be put upon his trial for a criminal offence until there was the presentment upon oath of a jury—that is, of 12 sworn men. Originally at common law a man could not even have been arrested until there had been such a presentment or indictment, which originally must have been by a "grand jury," probably the most primitive form of the jury and the origin of trial by jury. This species of presentment can be traced back to the Saxon laws, and it is one of the most striking instances of the force and tenacity of tradition in our institutions that the very terms of the oath administered in our own day to the grand jury can be found in the laws thus handed down by oral tradition from age to age for a thousand years. The Sheriff in those ancient times was the great criminal judge, and his power continued until after the Conquest. But in the mean time, as we all know, trial by ordeal existed as a common mode of trial in criminal cases, and it is one of the most difficult points in our legal history how the jury was used in such trials. It is beyond a doubt, however, that grand juries were used

before juries were used in trials of prisoners, and while the ordeal still continued the common mode of trial. Yet the *Mirror* mentions juries as used in Saxon times in criminal cases as well as the ordeal. But juries were then only witnesses, and perhaps the best solution that has been offered is that as juries only found facts from their own knowledge, the ordeal was resorted to when that knowledge failed. But at all events there was no power to arrest a person on a criminal charge except on presentment of a jury, and then the man was seized and tried at once. After the Conquest it became necessary to have an officer to inquire with a jury into criminal cases, and this officer was instituted in the reign of Edward I., and was called the Coroner. The presentments of a Coroner's jury were deemed equal to presentments by a grand jury, and hence at this day we read in our reports of the Central Criminal Court or the Assizes, that a prisoner is arraigned on an "indictment" or presentment of a grand jury, and also on the inquisition of the coroner's jury. The form in both cases is the same. Twelve men upon their oaths say that the man has feloniously killed such a person. Upon such a presentment a man can be arrested, and hence we also read in our reports of inquests that at the conclusion the "Coroner made out his warrant." The power of Justices of the Peace to issue such warrants is comparatively modern, and Lord Coke himself did not quite know how it arose. Like a great deal in our institutions, it arose not by statute or express law, but by gradual usage—though when established it became, by degrees, recognized by statute. The common law proceeding is either by Coroner's jury or by presentment before a grand jury. Prosecution before a magistrate is, in this country, a modern institution.

It is the duty of the Coroner to read over to every witness examined on the inquest the evidence which he has given, and to desire the witness to sign it.—*Reg. v. Plummer*, 1844. A Coroner ought not to exclude the testimony of parties who have material evidence to offer, on the ground that their testimony may tend to criminate themselves.—*Wakley v. Cooke and Healey*, 1849. A Coroner has no power, after holding an inquest *super visum corporis*, and recording the verdict, to hold a second like inquest *mero motu* on the same body; the first not having been quashed, and no writ of *melius inquirendum* having been awarded.—*Reg. v. White and Fisher*, 1860. If an inquest on a body is adjourned, and on the day appointed the Court is not formally opened and further adjourned, the proceedings drop, and the Court is dissolved, and everything else done in the matter of the inquest is *coram non judice*; and this is so even where the adjournment takes place for the purpose of drawing up a formal inquisition after the jury has in substance agreed upon their verdict.—*Reg. v. Payn*, 1864. An action does not lie against a Coroner for defamatory words spoken by him while holding an inquest.—*Thomas v. Churton*, 1862—an exemption which we have seen occasionally abused.

It must always be remembered that the verdict of the Coroner's jury regarding the cause of death is not in any way binding upon an ins. asso., or indeed any individual, in a civil action. Its only effect is to throw the burthen of proof on the party alleging the contrary. This was so settled in the case of *Prince of Wales Assu. Co. v. Palmer*, 1858. The same witnesses, or any of them, may be again called before the higher tribunal, with or without any additional evidence—in a word, the battle may be fought *de novo*. This is a fact which should be well kept in mind by the officials of ins. asso., who should never admit a suspicious claim simply because the Coroner's jury has brought in any given verdict.

So, again, if a Coroner refuse to hold an inquest in a case which is deemed to be attended with suspicious circumstances, an application should be at once made under sec. 5 of 23 & 24 Vict. c. 116 (1860), to the Court of Queen's Bench, to compel the holding of an inquest. *An application may be made to the Home Sec. for an order to exhumate a body for the purpose of an inquest on reasonable cause shown.* When a precept is issued, and a jury is summoned to attend an inquest, the Coroner is bound to proceed with the inquiry, and cannot dismiss the jury without doing so. A refusal to proceed with an inquest under such circumstances is a misbehaviour within the Act last named.—*In re Ward*, 1861. In the event of a Coroner showing undue partiality, or failing to record sufficiently important points of evidence, application should also be made to the Court of Queen's Bench.

We are careful to note these points, because by a disregard of some of them Coroners' Courts become a farce; and great injustice is sometimes done to insurance cos. where Coroner and jury, being alike neighbours and friends of the deceased, use all the machinery of the Court to suppress instead of arriving at and recording the truth. We shall at the close of this article offer a few suggestions by way of remedy.

Another branch of the Coroner's office is to inquire concerning shipwrecks and treasure trove. And an idea for some time prevailed that the Coroner was authorized to inquire into the origin of fires, even where no loss of life had occurred. Indeed, some such inquests were from time to time held; but in the case of *Reg. v. Herford*, before the Court of Queen's Bench in 1859, it was held that a Coroner had no power to inquire into the cause of a fire where there had been no loss of life.

In Scotland there are no coroners, so called. The Procurator Fiscal performs similar duties, but his inquiries are held in private. A few years since [about 1860, we believe], Mr. Robinson, the deputy sheriff of Lanarkshire, wrote to the agents of ins. offices carrying on bus. in Glasgow, that in consequence of the frequency of fires, he considered every case, without exception, should be investigated before him, or some competent authority, through the medium of the Procurator Fiscal. The plan was adopted, and was beginning to have a "telling effect;" the Scotch fire offices took steps to have the same plan adopted in Edinburgh and other counties of Scotland; when the Lord Advocate stopped it: stating that while he should be well pleased that the magistrates of boroughs should

establish a rule by which an investigation would take place in every case where fire occurs, he would not give his sanction to that course being adopted by sheriffs; and that the expense of such investigations would be allowed in Exchequer *only in those instances where there are grounds for supposing that the crime of wilful fire-raising can be brought home.* We again refer to the subject of the investigation of the cause of fires by Coroners, at the close of this article.

As we have already seen, the great majority of the Coroners are elected by the freeholders of the counties or town councils; but in some cases, by charter or prescription, the appointment is made by the lord of a manor. The Coroner for the hundred of High and Low Peak, Derbyshire, is appointed by the "possessor of the Horn of Ulphus." Every one of the five Coroners of Huntingdonshire is appointed by an individual, by privilege—viz. by the Duke of Manchester, the Earl of Sandwich, the Earl of Carysfort, and Mr. Fellowes, M.P. The Coroner for the Isle of Wight is appointed by the Governor of that island. The Dean and Chapter of Ely appoint the Coroner for the liberty of St. Ethelreda, Suffolk; the appointment of the two Coroners for Peterborough has passed from the Dean and Chapter to the Ecclesiastical Commissioners.

Mr. W. Baker, then one of the Coroners for Middlesex, said before the Select Parl. Committee, 1840—referring more particularly to the regis. of the cause of death—"It does seem very difficult, *without resorting to medical testimony*, almost in every case, to carry out the full intentions of the legislature—enforced, as the duty more particularly is, by the cogent requisitions of the Reg.-Gen., in his circulars to the registrars appointed by him to work out its principle in the best possible manner."

In the 3rd Rep. of Reg.-Gen. (pub. 1841), Dr. Farr, reviewing the requirements of the General Registration Act, said: "The inquests in England will henceforward be as efficient as similar inquiries in France and Germany, and be placed on a level with the present state of medical jurisprudence." His later circulars and letters to Coroners, which we proceed to notice, do not indicate that his hope has ever yet been realized.

In 1845 the Reg.-Gen. addressed a letter to the Coroners, "with obs. on the regis. of the causes of violent deaths." He says therein:

In order that the results of the "informations" may be compared, and become really useful to the public, in pointing out the causes of violent deaths (which appear to be of much more frequent occurrence in this kingdom than the rest of Europe), the nature of the fatal cases inquired into by juries must be described somewhat more in detail than is done at present. In many "informations" all the facts that can be useful are stated; and it is only required that the practice, already partially existing, should be extended and made uniform, to place the whole upon a satisfactory footing.

This letter was accompanied by "examples" of a most practical character.

In Dr. Farr's letter in 19th Rep. of Reg.-Gen., pub. 1858 [abstracts of 1856], there are some very valuable remarks in relation to "Coroners' returns of violent deaths." We can but take one or two passages; some of the statistics it supplied will be found in a table which will presently follow; other of its details will be given under VIOLENT DEATHS. Upon the subject before us he says:

A man is killed; the Coroner receives notice, and summons a certain number of men to inquire, under his direction, into the causes of the death, and to pronounce, after hearing the evidence, a preliminary verdict of acquittal or of guilt. The utility of the inquest is evident. It recognized, in barbarous times, the value of human life. No man could be slain without inquiry. It was a simple means of discovering the guilty, and it brought home blame to the negligent: at the same time the innocent were protected against false imprisonment, for "guilty" was not the verdict of a despot, but of a jury of twelve or more ordinary men, who fairly represented public opinion. The verdict threw a shield around the innocent, who, without the inquiry, might have been falsely suspected; it left no excuse for private vengeance; and, undoubtedly, the Coroner and the jury deterred many evil natures from the commission of crimes which they would have perpetrated had not the dread of the inquest interposed. Lives were thus saved, and every man enjoyed a sense of security which the commission of murders with impunity would have destroyed in the great mass of the population. For, without the inquest, assassination would be the death of many men—the dread of all.

The Coroner's inquest is entirely a popular institution. The county Coroner is elected by the freeholders; and it is one of the great advantages of the inquest that it engages the great body of the people in the administration of justice; public opinion is thus never in favour of a man whom a jury has pronounced guilty. Assassins and braves have been shielded from discovery by people in foreign lands who have never served on juries. Through inquests the great body of the English people have been taught also, to some extent, the action of general causes, such as nuisances, in destroying life.

At the Social Science Congress held at Manchester in 1866, two papers were read bearing upon the subject of Coroners. 1. *Should not Coroners be obliged by Law to hold Inquests in all Cases of Deaths within Union Poorhouses?* by Henry Cartwright, F.S.A., Barrister-at-Law. 2. *On the Advantages likely to accrue from a more extended Recognition of the Powers and Work of the Coroner's Office*, by Joseph J. Pope, Army Medical Staff, etc. The first paper was aimed at the too-great indifference to the value of human life, especially of children, sometimes displayed in our Union Workhouses. The second was in view of extending the duties of Coroners in the direction of the functions of the police magistrates regarding the investigation of such crimes as poisoning. A very interesting discussion arose on these papers in the Jurisprudence Department, wherein Mr. Aspland, from his experience as an hospital surgeon, expressed a low opinion of inquests, and pointed out that Coroners often dispensed with medical examinations out of regard for the ridiculous economy practised by the authorities. *He thought the Coroner should be a legal man; and*

should be assisted by the health officer. A very practical suggestion from our point of view. The appointment of medical officers of health under the Public Health Act, 1872, appears to offer facilities for obtaining an impartial investigation into the cause of death in every case of doubt, without necessarily encroaching upon the duties of the "usual medical attendant." The leaning of the latter, in cases of doubt, will naturally be in favour of the interests and feelings of the family. The public health officer may reasonably be expected to be entirely impartial.

In a valuable paper read before the Statis. So. in 1867, by Mr. J. T. Hammick, *On the Judicial Statistics of E. and W., with Special Reference to the recent Returns relating to Crime*, the following remarks were offered upon "Returns of Coroners' Inquests":

There are 330 Coroners in E. and W. who furnish returns; many of these functionaries acting for small boroughs and liberties, where the need of a separate Coroner is not very obvious, whatever may be said in favour of maintaining the ancient right of appointment in such places, instead of merging small jurisdictions in larger ones. In 1865 less than 10 inquests were held by each of 83 Coroners; several held no inquests. The largest number held during the year by one Coroner (or his deputy) was in the eastern division of Middlesex, viz. 1590. Besides the number of inquests, distinguishing the cases of legitimate and illegitimate children of 1 year and under, and between 1 year and 7 years, and those of young persons and adults, the Coroners return the "finding of the jury" under a few general heads, *which might with great advantage be extended.*

We quote this paper under other titles.

In the 29th Rep. of Reg.-Gen., pub. 1868 [abstracts of 1866], there is another letter addressed by the Reg.-Gen. to the Coroners. We take from it one or two passages:

It cannot be doubted that deaths by "accidental violence"—under this term being included all fatal violence except that which arises from express homicidal intention—have much increased within the present century. The introduction of steam as a moving power, the wonderful extension of railway travelling for business and pleasure, the redoubled activity of manufacturing and mining operations, of navigation, agriculture, and general traffic, the multitude of poisons in medicine and the arts accessible to old and young, the manufacture of explosive substances, the direction of new forces and modes of action in the hands of rash and inexperienced persons, and under the urgency of commercial considerations,—have inevitably destroyed the lives of thousands, who, fifty years ago, would have succumbed to death in a natural manner. Science itself creates new instruments of death; and it is imposed on science, as a correlative obligation, that it should surround human life with new defences. But wrongs must be known that remedies may be found; and in that wide and various field of experiment which is co-extensive with national life and activity individual facts, and facts in their innumerable modifications and combinations, must be observed and recorded, that correct and useful results may be obtained. The lives of the people have become a chief subject of public concern; and the questions are now put in respect to every individual in the realm: When, and where was he born? What occupation did he follow? When, where, and in what manner did he die?

The circumstances in which violent deaths occur are so various and multiplied that, for describing and recording them, it is possible only to suggest a few general rules. In the following pages I have noticed the most important particulars required, as well as actual defects and omissions that have deprived many "informations to Registrars" of that scientific character and value which they must possess if they would satisfy the intentions of the statute; and I have added some specimens of the better class of returns. But it is chiefly necessary to keep in view the important object contemplated in registering informations; and if this is done there will be no difficulty in returning the causes of violent deaths with sufficient detail, explicitness, and uniformity to admit of analysis and comparison, and furnish results that will stimulate the invention of individuals, excite the vigilance of proprietors, trading communities, and corporations, and direct the path of legislation.

At the British Asso. Meeting at Norwich in 1868, Mr. Lavington E. Fletcher read a paper, *On the Unsatisfactory Character of Coroners' Inquests consequent on Steam Boiler Explosions*. The author, after giving some statistics on the number of explosions of this class, to which we shall more specifically refer under EXPLOSIONS, proceeded to make suggestions, of which the following is an outline:

Let every Coroner be empowered and instructed, when holding an inquiry on a boiler explosion, to call in two competent and perfectly independent scientific engineers to investigate the cause of the explosion, and report to the jury. These engineers should visit the scene of the explosion, examine the fragments of the boiler, attend at the inquest, hear the evidence given by parties concerned in charge of the boiler, and aid the Coroner in conducting the inquiry; while, in add., they should report to him either jointly or severally on the cause of the explosion, and accompany their report with suitable sealed drawings of the exploded boiler, showing its orig. construction, and the lines of fracture, as well as the flight of the parts, as far as they are ascertained.

These reports to be afterwards deposited at the Patent Office, for the perusal of scientific and other persons.

The R. of Reg.-Gen. for the last quarter of 1872 says:

During the 3 months 6500 or 5·5 p.c. of the deaths in E. and W. were regis. upon the information of the Coroners, against 4·9 and 4·8 p.c. in the corresponding quarters of 1870 and 1871. The deaths referred to different forms of violence were 4117 or 3·5 p.c. of all the deaths; in the corresponding 3 months of 1871 the violent deaths were 4048, or 3 p.c. of the deaths from all causes. In workhouses, hospitals, and lunatic asylums 10,136, or 8·6 p.c. of the total deaths were recorded; the proportion in the corresponding quarters of 1870 and 1871 was 8·4 and 8·6 p.c. respectively.

Speaking of the metropolis alone, we find the deaths regis. on the information of the metropolitan Coroners during the quarter bore a still higher per-centage—they were in all 1218, or 7·5 p.c. of the total deaths, against 6·3 p.c. in the corresponding period of 1871.

We have, from the somewhat imperfect materials at our command, endeavoured to construct a T. showing the number of Coroners' inquests held ann. in E. and W., the total and individual cost of the same, and other details of interest. We regret that we cannot make the T. more perfect at the present moment. Under ACCIDENTS and DEATHS we have already accounted for a very considerable proportion of the deaths which ann. come under the cognizance of Coroners.

STATISTICS OF CORONERS AND CORONERS' INQUESTS IN ENGLAND AND WALES.

Year.	No. of Coroners.	No. of Inquests.	Total Cost.	Average Cost per Inquest.	Upon Males.	Upon Females.	No. of Verdicts of Accidental Death.
1856	324	21,801	£ 67,000	£ s. d. 3 1 6	...	...	9716
1857
1858	...	19,846	...	...	...	...	8947
1859	...	20,531	...	...	...	...	9241
1860	...	21,178	...	...	...	...	9225
1861	...	21,038	...	...	...	...	9213
1862	...	20,591	...	...	...	...	9005
1863	...	22,757	...	...	...	...	9952
1864	...	24,787	72,598	2 18 7	...	...	10,997
1865	...	25,011	...	...	...	...	11,397
1866	...	24,926	...	...	17,496	7430	...
1867
1868	...	24,774	...	...	17,476	7298	...
1869
1870	330	25,376	79,138	3 2 4	...	...	...
1871	...	25,898	80,446	3 2 1	...	...	11,316

Mr. Hammick, in his paper on "Judicial Statistics" (1867), already quoted, reviewing some portions of the preceding statistics, says:—

There has been a considerable increase in the number of inquests of late years, mainly owing to the increased frequency of fatal accidents through railways, mines, machinery, fires, and crowded streets; yet in the Coroners' returns there is no distinction of these various agencies, and we must be content with the bare statement that the finding of the jury was "Accidental Death" in a large proportion of the cases, *with respect to which information of great interest to the public might easily be afforded.* . . . While the inquests in 1865 [the last year he reviews] show an increase of *more than one-fifth* upon those in 1862, the cases of accidental deaths had increased *more than one-fourth* in the 3 years. But it should be remembered that there are many deaths by accident with respect to which the Coroners, in the exercise of the discretion allowed them by law, do not hold inquests, there being no reason to suspect foul play. In other cases, where a large number of persons are killed by explosion in a mine, a railway collision, or other great and appalling accident, *the Coroner holds his inquest upon a view of a few of the bodies only*, usually such as may be first identified by the friends of the deceased; and every purpose connected with the full investigation of the circumstances which may have led to the accident is thus sufficiently obtained. *In the late terrible accident at the Oaks Colliery, near Barnsley, inquests were held on 12 bodies only, upwards of 400 men and boys having perished.*

From the Coroners' Returns for 1870 [pub. 1872] we obtain the following details:—Most of the county Coroners are now paid by salaries, with an allowance for expenses. The two elected county Coroners for Surrey received between them £3206 in the year 1870. There are 21 Coroners for the various districts into which Yorkshire is divided, besides Coroners for York, Leeds, Hull, Doncaster, Pontefract, Scarborough, and Richmond. There are 11 Coroners for various hundreds or manors of Lancashire; the Coroner for West Derby received £800 salary and £965 with expenses in the year. The County of Middlesex allows salaries of £2057 for the eastern district, £1700 for the central, and £600 for the western; but the actual payments in the year to the several Coroners were £4986 for the eastern district, £5629 for the central, £1665 for the western, £1290 for Westminster, and £150 for the Duchy of Lancaster. The Coroner for the City of London received £885 for salary, and £457 for expenses; the Coroner for Southwark, £624. The year's payment for Birmingham was £2183, viz. £1135 for the Coroner's fees, £880 for surgeons and other witnesses, and £168 for other expenses. The Coroner for Manchester is stated to have received £1492, and the Coroner for Liverpool £2310, both being paid by fees. Some Coroners received very small sums in the year, and must have had very little to do. The Coroner for Gillingham Liberty, one of the eleven Coroners of Dorset, received £4; the Coroner for the manor of Hale, one of the Lancashire eleven, £1 and 12s. for expenses, and the Coroner for the manor of Prescot £4 for salary and 12s. for expenses; the Coroner for Richmond, Yorkshire, received £3 14s. 4d.; the Coroner for Thetford £3 6s. 2d.

Dr. Lankester, one of the Coroners for Middlesex, an efficient officer, who is constantly in conflict with the County Justices on the subject of the cost of the inquests he holds being greater than those of some of the other Coroners for the same county, in a letter to the *Times*, Oct., 1872, says:—

Various circumstances exert an influence on Coroners' charges, and they differ much in different parts of England and Wales. In the "Judicial Statistics for 1871," I find that in England and Wales 25,898 inquests were held, at an expense of £80,446. This gives an average of £3 2s. 4d. for each inquest. From the same returns I find the average cost of inquests in Middlesex is £3 14s. The following is the cost of each inquest in the various districts of Middlesex:—Eastern division, Mr. Humphrey, £3 3s.; Western division, Dr. Diplock, £3 7s.; Central division, Dr. Lankester, £3 16s.; Westminster, Mr. Bedford, £3 19s.; City of London, Serjeant Payne, £4 13s.; Duchy of Lancaster, Mr. Payne, £3 7s.

But he also says, "that in 9 cases out of 10 a Coroner's inquest without a *post-mortem*

examination is a farce." His acting upon this honest conviction no doubt increases the cost ; but it increases the efficiency in a still larger degree.

There is now (1873) before Parl., *A Bill to make provision for investigation into the causes and circumstances of fires*. Its main features may be rendered in a condensed form as follows :

2. Every Coroner shall, within the limits of the county, riding, division, district, city, borough, liberty, franchise, or place for which he acts as such Coroner for the purpose of holding inquests respecting deaths, hold inquiries respecting fires happening at premises within such limits in any of the following cases (and in no others), that is to say:—

1. When a rep. is made to him by an officer of the police, in pursuance of the provisions hereinafter in this Act contained, to the effect that there is ground to believe such fire to have been caused or aggravated by the wilful or unlawful act or default of any person, whether known or unknown ; or
2. When directed by a Sec. of State, or by two Justices or a Police or Stipendiary Magistrate for the place where such fire happens, or in the metropolis by the Metropolitan Board of Works ; or
3. When an application is made to him by a person interested as hereinafter in this section defined, accompanied with an affidavit sworn by such person before a Justice of the Peace, to the effect that in the judgment of such person there is ground to believe such fire to have been caused or aggravated as aforesaid, and with such deposit as is hereinafter in this sec. mentioned as a security for costs which may be awarded against such person in pursuance of the provisions of this Act.

The following persons shall be deemed to be persons interested for the purposes of this sec., namely—

1. Any person being an owner or occupier of any part of such premises, or of any immediately adjoining ; and

2. Any person whose property was destroyed or damaged by such fire, or was in or upon such premises or any immediately adjoining premises at the time of such fire ; and
 3. Any ins. co., or partner in or officer of any ins. co., by whom such premises, or any immediately adjoining premises as aforesaid, were or was ins. at the time of such fire.
 4. The district board or vestry acting within that part of the metropolis to which the inquiry relates.
- The deposit to be made by an applicant as aforesaid shall be to such amount as the Coroners may in each case determine, and shall be made either by leaving such amount with the Coroner (who shall give a receipt for the same), or by giving security to the satisfaction of the Coroner to the extent of such amount.

There are the following additional provisions :—3. Fires to be reported to the Coroner by the police. 4. Mode of conducting the inquiries. 5. Annual rep. by Coroners to Sec. of State. 6. Provision for assessors to Coroners in certain cases. 7. Appointment of an officer in lieu of Coroner. 8. Prohibition of payment of ins. claims pending inquiry. 9. Powers of authorized fire brigades in relation to fires. 10. Expenses of inquiry respecting fires. 11. Provisions as to informalities. 12. Existing Coroners. 13. Saving clause. 14. Act to apply to Ireland with certain exceptions. 15. Nothing to affect Metropolitan Fire Brigade Act, 1865. 16. Commencement of Act. 17. Short title "*The Fires Act, 1873*."

The measure is a very practical one, and ought to be carried.

In view of the important duties now proposed to be thrown upon Coroners, the question of who are the more suitable persons for this office becomes one of increasing importance. In 1840 a select Parl. Committee was appointed "to inquire into any measures which have been adopted for carrying into effect in the county of Middlesex the provisions of the Act 1 Vict. c. 68 ; and also any proceedings of the Justices of the Peace in relation to the office of Coroner in the said county."

This Committee issued its rep. in the same year, accompanied by minutes of evidence taken. The rep. confines itself to the technical questions referred to the Committee, which have no interest for our present purposes ; but the evidence taken was not of such a limited nature. Thus, Mr. Peter Laurie, being then an alderman of London and a magistrate of Middlesex, being under examination, was interrogated, and answered as follows :

1036. Do you not think that medical knowledge in a Coroner may perhaps enable him to determine much more easily whether medical witnesses ought to be called or not?—Of course it is desirable that every presiding officer should have as much information as possible. I am of opinion that a Coroner's inquest ought to be confined as strictly as possible to being a judicial inquiry, and not a medical investigation. *I think it is of much more importance that we should have a legal officer to preside over a judicial inquiry than a medical one. It is always in the power of a legal officer to call for medical assistance ; and as in many cases the Coroner's inquest has the effect of putting people on their trial for their lives, it is of great importance that that inquiry should be conducted with as great a regard to legal precision as possible ; and I think upon the whole that it is preferable to have a legal officer than a medical officer, ceteris paribus.*

1037. My question did not go into the general question in any point, but referred to a particular point, of the advantage a Coroner would derive from medical knowledge?—Certainly ; but a legal officer can very easily obtain sufficient medical information to lead the inquiry to its proper result.

1038. Do you think it of importance, the officer who presides in the Court should understand the testimony when he hears it?—Of course.

1039. If he has not medical knowledge, how can he understand medical testimony?—*The same objection will apply to the jury ; if it is necessary to have a medical judge, you must have a medical jury.*

1040. That objection may also apply to the jury ; but is not the evil greatly aggravated if the whole Court, consisting of judge and jury, are ignorant on the points of evidence, as regards medical testimony?—Clearly ; no doubt about that.

1041. The object of a Coroner's inquest being exclusively for the purpose of ascertaining the cause of death, is not a medical man the fittest person to form a correct judgment?—*No ; I apprehend that it is not the object of a Coroner's inquest ; the object of a Coroner's inquest is to inquire whether the deceased came to his death by fair or unfair means.*

The Select Parl. Committee of 1862 on *Fires in the Metropolis* directed some attention to the question of any prob. advantage resulting from inquiries before Coroners as to the

causes of fires. Sir Richard Mayne, then Chief Commissioner of Metropolitan Police, was the first witness examined :

175. Has your attention ever been directed to the fact of Coroners holding inquests upon the origin of fires?—Yes. Constantly.

176. Can you form any opinion as to the effect produced by the holding of such an inquest: whether it has the effect of causing the number of fires to diminish in the district where the fire occurred: whether, in fact, it produced any useful effect?—I have never heard that it had any such effect. Where lives are lost, I think it is satisfactory, especially to the lower classes, that there should be inquiry.

177. Naturally there is always an inquest where life is lost; but I allude principally to a Coroner's inquisition inquiring into the causes of fire and all the circumstances surrounding it?—I have never heard of any beneficial effect from it. I do not mean to say that there may not be; it would not necessarily come under my knowledge.

Mr. John Humphreys, one of the Coroners for the County of Middlesex, was examined before the same Committee :

1918. Have you any power as Coroner to inquire into the causes of fire?—I might, perhaps, mention for the information of the Committee, that the ancient rights of Coroners were to take cognizance of felonies and misdemeanors, and to try offenders. By Magna Charta the trying of offenders was restrained, but it was still competent to the Coroner to take cognizance of felonies and misdemeanors; so that up to a very recent period the Coroners have exercised a right to inquire into fires; but by a recent decision of the Court of Queen's Bench [*Reg. v. Hertford*, 1859, already quoted] that Court has held that a Coroner has no power to inquire into the cause of a fire unless death has ensued.

1919. And practically do you consider it competent for you to inquire into the causes of a fire unless life has been sacrificed?—Not since that decision; but I think that it *would be most valuable and most essential to the preservation of life that the power of the Coroner to inquire into fires should continue*.

1920. Would it be necessary to alter the laws in any respect for that purpose?—Yes. We are now in this position, that no Coroner would undertake that duty in the face of the decision of the Court of Queen's Bench; but I have known many instances where it has been attended with very beneficial results. I might mention that the taking of inquests upon fires was revived a few years back by the Coroner for the City of London, and immediately afterwards the fires fell one-fourth.

1921. Then you think that bringing the power of the Coroner to bear upon an examination as to the cause of fire would tend to diminish the frequency of fires?—*Most materially*; because it is well known that a large proportion of the fires are wilfully caused; but ins. offices cannot defend, or otherwise they would lose their bus.; they would get the character of being litigious, and people would refuse to ins. with them.

1923. Do you think that the occurrence of fires by incendiaries is frequent in the metropolis?—I would distinguish as to incendiaries; they are wilfully caused by persons beneficially interested in the ins. I have had a very recent application to hold an inquest on a fire which took place under circumstances of great suspicion; but under the present state of the law of course I refused.

1924. The Corp. of Lond., I believe, resisted Mr. Payne in his attempt?—Yes. But Mr. Payne, like all other Coroners, is not remunerated for holding inquests upon fires.

1925. Did he claim a remuneration from the Corp.?—Yes, which was refused; and the County Justices have always refused the Coroners of Middlesex, so that we have performed that bus. without any remuneration.

1929. A Coroner has that power [of summoning witnesses]?—He has.

1930. And, consequently, he can go into a full examination, and compel persons to come before him and state all the facts?—Yes.

1931. None of those powers are invested in the ins. offices?—In no person.

1932. Is it not necessary that that inquiry should take place immediately after the occurrence of the fire, when you can obtain evidence on the subject?—Immediately, and that the jury should view the spot.

1933. Therefore any inquiries which subsequently take place by the ins. office cannot by possibility be so effective as those which the Coroner would institute?—Certainly not; because they would not get the truth as the Coroner would, by an examination of the premises and an examination of the witnesses upon oath.

1934. Is there any further remark which you wish to make?—I would wish to impress upon the Committee that the advantage of the Coroner's court is not so much from the number of crimes detected as from the number of crimes prevented.

1935. That is to say, persons would not be so likely to commit an offence of that sort if they knew that immediately upon their doing it there was to be an inquiry by a competent officer?—*In the one instance to which I have referred, there had been fires frequently, and I had a memorial from 20 inhabitants, the churchwardens and others, requesting that I would take an inquiry, and the fires fell so that there was not one for six months afterwards.*

Before the same Committee Mr. D. W. Harvey, then Commissioner of the City of London Police Force, gave evidence :

2751. . . . I suppose you would not like to give an answer upon this point; namely, as to the duties of the Coroner—whether the duties of the Coroner should be extended to inquiring into fires?—I think that all fires ought to be investigated, unless (which is perhaps the case with the majority) there is no suspicion; but where there is the slightest suspicion, there ought to be an efficient inquiry.

2752. Has it suggested itself to your mind by whom that inquiry should take place?—I should say the police would be very competent to it.

2753. There must be somebody to whom the police could apply, to act as the magistrate or the judge, or at all events the superintending officer. Whom would you suggest for that position better than the Coroner?—I am not aware of any person more eligible; I am not certain that it is not within his province to do it; but at all events it would be well that it should be so.

That Committee did not in its report make any recommendation on this particular point of the inquiry.

In 1867 another select Parl. Committee sat "to inquire into the existing legis. provisions for the protection of life and property against fires in the U. K., and as to the best means to be adopted for ascertaining the causes, and preventing the frequency of fires." Mr. M'Lagan, who has charge of the Bill now before Parl. was the chairman of that committee. A number of the witnesses examined were interrogated as to the fitness of the Coroner for conducting inquiries into the causes of fire—for the necessity of an inquiry

was generally admitted. Their views varied : Mr. Boulton was in favour of a Fire-Marshall ; Mr. Bunyon gave special reasons against the Coroner's Courts, to which we shall have presently to refer. The Committee embodied in its rep. the following :

Your Committee, after giving due consideration to this subject, would prefer the police magistrate or Coroner to the Fire-Marshall, mainly because in the Courts of those two officers they have a ready-made machinery ; and they, such being the case, are averse to the recommendation of the creation of any new offices ; and they would recommend the Coroner to carry out the second stage of the inquiry [discovering whether the fire is suspicious or otherwise] in preference to the police magistrate, because the Coroner's Court is a movable one, and he can constitute his Court and conduct his inquiry in the immediate vicinity of the fire ; and because till late he was generally considered to have the power of inquiring into fires, and such power was exercised by some Coroners.

Your Committee would recommend that he should be paid for conducting the inquiry partly by fees, and partly by salary out of rates. . . .

In conformity with this recommendation the present measure is introduced. If the Coroners be the officers appointed by Parl. for the important purpose in view, a considerable reform in the selection of these officers must in future prevail. Men with a certain amount of legal knowledge will be absolutely required. Doctors, and persons outside the legal profession, can no longer be tolerated. In the words of Mr. Bunyon (1867) : "The evidence before Coroners' inquests is of the loosest description." The whole proceedings are too often so. Neither the reputation, and far less the liberty, of any person should depend upon the direction of such untrained officials as too often fill the office of Coroner. No lawyer practising in the district, or in partnership with others who are practising, must be permitted to hold the office of Coroner. A death occurring under suspicious circumstances, the Coroner or his partner (if he have one) is retained on behalf of the family. Can an ins. office sit quiet under a verdict obtained against it, in the face of strong evidence, which might have been called by the Coroner, but was not, in such a state of matters ? This is no imaginary case. The Coroner in order properly to discharge even his present duties requires to be made independent ; if these new duties be thrown upon them, this will be more than ever necessary. By being made Supt. Registrars, or Deputy County Treasurers, might not this be done without any greatly increased expense ?

In the revised statutes of the State of New York, under "Investigation of fires in certain cases," there is the following enactment :

1. Whenever it shall be made to appear by the affidavit of a credible witness, that there is ground to believe that any building has been maliciously set on fire, or attempted to be, any Coroner, Sheriff, or Deputy-Sheriff of the County in which such crime is supposed to have been committed, to whom such affidavit shall be delivered, and who shall be requested in writing by the president, sec., or agent of any ins. co., or by two or more reputable freeholders, to investigate the truth of such belief, shall do so without delay.

2. For this purpose he shall possess all the powers conferred upon Coroners for the purpose of holding inquests, etc., etc.

3. The jury, after inspecting the place where the fire was, or was attempted, and after hearing the testimony, shall deliver to the officer holding such inquest their inquisition in writing, to be signed by them, in which they shall find and certify how and in what manner such fire happened or was attempted, and all the circumstances attending the same, and who were guilty thereof, either as principal or accessory, and in what manner. But if such jury shall be unable to ascertain the origin and circumstances of such fire, they shall find and certify accordingly.

4. If the jury find that any building has been designedly set on fire, or has been attempted so to be, the officer holding such inquest shall bind over the witnesses to appear and testify at the next criminal court at which an indictment for such an offence can be found that shall be held in the county. And in such case, if the party charged with any such offence be not in custody, the officer holding such inquest shall have power to issue process for his arrest, in the same manner as Justices of the Peace.

5. The officer issuing such process shall have the same power to examine the party arrested as is possessed by a Justice of the Peace, and shall in all respects proceed in a like manner.

6. The testimony of all witnesses examined before the jury under this law shall be reduced to writing by the officer holding the inquest, and shall be returned by him, together with the inquisition of the jury, and all recognizances and examinations taken by such officer to the next Criminal Court of Record that shall be held in such county.

Massachusetts has a similar law, enacted in 1867. Mr. Griswold, in his *Underwriters' Text-Book*, 1872, says : "It would be well for the community if each State of our Union had a similar law, by which the origin of our 'suspicious' fires could be officially inquired into. *Indeed there should be a law compelling some official to inquire into the known or unknown cause of every fire.* No greater safeguard against dishonest losses could be found than a close scrutiny by proper officials into the cause of every fire."

CORPORATE NAME.—When a Corp. is created, a name is always given to it, or supposing none to be actually given, will attach to it by implication ; and by that name alone it must sue and be sued, and do all legal acts. A very minute variation has been held not to be material. The name may be changed. [NAME, CHANGE OF.]

CORPORATE PRIVILEGES.—See LEGISLATION FOR AND AFFECTING INS. ASSO.

CORPORATION.—A corporate company. See INCORPORATED COMPANIES. LEGISLATION FOR AND AFFECTING INS. ASSO.

CORPORATION OF LONDON.—The Corporation of London undertook the insuring of property within the City against loss by *Fire* in 1681. Proposals to that end had been made almost immediately after the Great Fire of Lond. 1666. The first of these was one by Mr. Delaune, which came before the Court of Common Council in Dec. 1668. The next from Mr. Deputy Newbold in 1681 ; and the consideration of this latter proposal appears to have determined the Corp. to undertake the bus. of fire ins., which, however, it discontinued in the following year. The complete hist. of this remarkable incident will be given in our hist. of FIRE INS.

CORPSE (from *corpus*, a body).—A body without life. The term was originally applied to living persons also.

CORPULENCE.—An excessive increase of the body from accumulation of fat. [HEIGHT AND WEIGHT.] [HUMAN BODY.]

CORPUS.—A body or substance. Term for an arrangement of parts forming a whole, as the human body. Formerly applied to the basis, or chief ingredient in a formula.—*Mayne*.

CORPUS JURIS CIVILIS.—To the orig. Code of Justinian, that Emperor added the *Digest* or *Pandects*, the *Institutes*, and *Novels*. These were promulgated 16 Nov., A.D. 529. These compilations collectively constitute the body of the Civil Law, under the above designation.

CORRECTION.—"By the term correcting, or equating obs. for nutation, is always understood in astronomy the getting rid of a periodical cause of fluctuation, and presenting a result, *not as it was observed*, but as it *would have been observed* had that cause of fluctuation had no existence."—*Herschel*.

The same process has to be applied in the construction of mort. T. A simple instance may be furnished. Between the ages of 15 and 25, and indeed up to later ages, the mort. is kept down in towns by the influx of healthy people (chiefly females) from the country. Thus in Lond. the ann. mort. amongst young women between the ages named is only 6 p. 1000; while in the surrounding counties the mort. at the same age is from 7 to 8 p. 1000; and amongst young men in Lond. at the like age it is 8 p. 1000. The solution is found in the fact that healthy young women of these ages go from the country into Lond., and other large towns, and obtain situations; and frequently, if they are taken ill, go back into the country to die. The effect is to make towns look more healthy than the country at these ages. Mort. T. constructed upon extensive data from town and country life would not be materially affected by such fluctuations. Those based upon town obs. are certain to be more or less so, unless subjected to the processes just enumerated [adjustment, graduation, correction]. They would, in fact, exhibit fictitious decrements at the ages enumerated, if this "correction"—which implies the preceding processes—were omitted.—*Ins. Guide and Hand Book*, 1857.

CORRECTIONS OF POLICY.—There are a great many cases in the law-books regarding what are termed "Corrections of Policies." These are mostly in connexion with *Marine* Ins. pol., wherein the necessity for correction far more frequently arises than in any other branch of ins. bus. We have already, under ALTERATION OF POLICY, etc., spoken of the care which must be exercised in any such case. Thus it was held in the case of *Langhorn v. Cologan*, 1812, that if a pol. is executed in the printed form without any specific subject of ins. being inserted in writing, and the add. when made is signed by some of the underwriters only, the insured cannot recover against those underwriters who do not so sign on the contract as it stands altered by the insertion.

CORRELATIONS OF DISEASE.—This subject is one which has an especial interest for medical examiners of life offices, and continually calls for their observation and reflection. We do not know if it has been much written upon. Dr. C. H. Parry, of Bath, in his *Elements of Pathology and Therapeutics*, pub. 1825, entered into the subject, but took the extreme view, that all diseases have one common origin. Mr. John Mann, in his *Medical Statistics*, 1865, commenting upon Dr. Parry's contention, says:—

If this generalization were much less expansive, it would be more correct, and would then convey a more exact idea of what is meant by the Correlations of Disease. If, for example, it were assumed that *some* (certainly not *all*) diseases have a common origin, *in consequence of which they often become substituted for each other, in different branches of the same family; or even in the experience of the same individual at different periods of life*. We do not propose here to enter into any inquiry as to the cause of these Correlations, but to treat them simply as groups of facts having some reciprocal relationship: because whenever one of these has made its appearance, it indicates a strong prob. that *another* of the group will sooner or later appear in the family, and sometimes in the individual at another stage of life.

These correlated facts have presented themselves to my obs. in groups like the following: *Primary*, insanity; *Secondary*, insanity, intemperance, phthisis, gout, white swelling. *Primary*, Haemorrhoids; *Secondary*, phthisis, apoplexy, diseased liver. *Primary*, uric acid, calculus; *Secondary*, Haemoptysis, dyspnoea, mania, epilepsy. *Primary*, gout; *Secondary*, asthma, calculus, heart disease, dyspepsia, anasarca. *Primary*, scrofula; *Secondary*, hydrocephalus, ophthalmia, mesenteric disease, spinal disease, hip-joint disease, obstinate ulcerations of various portions of the skin, glandular disease, phthisis, cancer. . . .

A more striking proof of these groups of correlated diseases is occasionally afforded when we meet with each successively developed at various periods of life in one and the same individual. Thus I have seen the first in such a series to be the formation of uric acid calculus in the kidney. The patient becomes convalescent, and is next attacked by spasmodic dyspnoea; the next manifestation was hæmoptysis, then a temporary paralysis of a hemiplegic character. Recovering from this, the patient next displayed symptoms of mental disease, which became confirmed mania, terminating fatally by epilepsy.

He adds:—

If it be important in the practice of medicine to study these correlations of disease (far more important than any nosological arrangements—these correlations being the *nosology of nature*), then is it at least of equal importance in the valuation [estimate] of lives for the purpose of a life assu. co., not only to be familiar with the existence of such laws, but to give them their proper weight and application in the use we make of a prosperous family history.

CORRESPONDENTS.—The necessities of commerce require merchants to have "Correspondents" in various countries. These are really agents for each other to the extent of the authority they hold; and even beyond this: for the law has had to take cognizance of

the business relationship of Correspondents with their principals; and there are several cases on the books bearing upon the subject. Thus, in the well-known case of *Smith v. Lascelles*, 1788, it was held that a merchant abroad, having effects in the hands of his Correspondent here, may compel him to procure an ins. for him; and, again, if a merchant here has been accustomed to procure ins. for his Correspondent abroad in the usual course of trade, the latter has a right to expect an ins. at the hands of the former, unless some previous notice is given to the contrary.

CORSAIR.—A name commonly given to the piratical cruisers of Barbary, who frequently plundered the merchant ships indiscriminately.—*Smyth*.

COSMOPOLITAN LIFE INS. CO.—Founded in 1855, to the extent of being completely regis. on 4th Oct. of that year—the first regis. promoter being Mr. John James Nicholl, Solicitor, Essex Street, Strand; but we do not find that the Co. ever actually commenced bus. In 1866 it passed into liq., and so disappeared from the wide universe which it had intended as the field of its operations.

COSMOPOLITAN, THE.—A newspaper under this title was founded in 1865, pub. in Lond. and Paris. In 1869 it suddenly devoted some portion of its feeble energies to the subject of ins.; but the writers in this department appeared to have neither the ability to instruct nor the wit to amuse; and so it took no hold of the ins. interests.

COSSER, WALTER, was Resident Sec. of *Palladium* in 1828.

COST PREMIUM.—This term has been applied by writers in the U.S. to designate the *net prem.*—sometimes called the *pure prem.*—that is, the prem. minus any "loading."

COSTIVENESS.—Constipation, or confinement of the bowels.

COSTUMBRES DE VALENCIA.—In 1238 King James had re-conquered Valencia from the Moors; and in 1250 promulgated an extensive body of laws under this title. Of all the monuments of legislation of the 13th century, M. Pardessus observes, this body of laws most deserves to be remarked, from the influence which jurists and civilians versed in the study of the Roman law must have exercised in its compilation. For, although written in the vulgar language of the time, its regulations are free translations of the texts of the Digest and Code of Justinian, among which are frequently interspersed different and new rules. This Code of 1250 was printed at Valencia in 1527, with additions and posterior laws interspersed and appended, and containing in the whole a considerable number of regulations on maritime law, under the title of *FORUM REGNI VALENCIE*.

CO-SURETY.—A fellow-surety.

COTTON, MARY ANN, was executed at Durham, in 1873, on conviction for murder. She had not only poisoned her step-child, but also at least one of her own children, one husband, and a lodger. Her sole motive appears to have been to obtain possession of the money ins. by her on the lives of her victims in various industrial ins. asso. These crimes had extended over several years.

COUGH (*Tussis*).—A violent and sonorous expiration, attended by a correspondingly rapid inspiration. This definition applies to a fit of coughing, in which the actions occur in rapid succession. Cough is said to be *dry* or *moist*, according as it is unattended or attended by expectoration.—*Hoblyn*.

Dr. Allen, in his *Medical Examinations for L. Ins.*, 1869, says, under "Habitual Cough":

The significance of an habitual cough in L. ins. examinations depends wholly on its cause; but if admitted it requires critical examination. It may depend on local causes in the pharynx, larynx, trachea, bronchia, or pulmonary parenchyma. It may arise from cardiac, hepatic, gastric, intestinal or spinal disease. It may be a mere morbid habit of the nerves and muscles involved in the act. Primarily it demands physical diagnosis of the condition of the lung tissue, especially at the apices of the lobes, together with a rational account of the hist. and diathesis, etc.

COULTHARD, RALPH, was Sec. of *Safety L.* from 1854, during its brief career.

COURTNEANCE, ASPECT OF.—Experienced observers readily recognize in diseases a physiognomy peculiar to each, always difficult, and often impossible, satisfactorily to describe: nevertheless, so distinguishable as to be worthy of serious consideration in judging of a risk. By this obs. they can ultimately decide, almost as quickly as an expert cashier upon the genuineness of a signature or a bank-note. But this acquired skill and readiness never, when such large interests are in issue, should be relied upon to the exclusion of those rigid tests by which the *opinion* may be solidified into an unassailable judgment.—*Allen*.

The same writer then proceeds to notice a few of the more striking facts "as indicating the direction of obs.":

The aspect may inform of tuberculous cachexia by the delicate skin, tumid upper lip, long eyelashes, pearly conjunctiva, etc. Or it may denote the cancerous diathesis by its sallow anæmic hue intermingled with muscular workings, indicating frequently recurring or continuous pain, or of that organic pain of which consciousness as yet takes no note, but which equally calls into action the reflex sympathies of the nervous apparatus.

Hepatic disease, with its more or less yellow tinge, and hypochondriacal look. Or renal affection, with its puffy eyelids, sodden or waxy skin, and features either downcast or stolid and apathetic.

Hypertrophy of the heart, with its unnatural bulness and congestion, or the same look from habitual intemperance. Or the facial muscles may be permanently contracted in forms which indicate the continuous suffering of wasting local or general disease. Lesions affecting the nervous centres may find here their earliest exponent. The countenance, which tranquil shows no disorder, when awakened by movement may give warning of coming paralysis. Or the furtive glance from the eyes, notwithstanding immobility of the other features, may warn of impending insanity. Or the rapid

transitions in expression, flashing or wandering and unsteady eyes, may indicate a different form of the same malady. Or the whole face may be dull and listless, the eyes sluggish, and the physiognomy of softening of the brain be almost beyond mistake.

COUNTER-INSURANCE.—The system of re-insurance is sometimes designed "Counter-ins."
COUNTERSIGNING BY AGENTS.—All fire ins. cos. transacting bus. in foreign countries are compelled almost by the necessities of the case to provide that the pol. issued in such distant places shall be countersigned by the chief agent or man. of the branch or agency. In fact the pol. have to be *written* by such agent or man. or under his order: and hence he is made a party to the transaction, to which his signature supplies the necessary evidence of his authority. Life offices very rarely require their pol. to be signed by their foreign agents or man.; but the renewal receipts, both fire and life, are almost invariably so countersigned; and upon this countersignature, or its absence, various cases have come before the Law Courts: especially in the U.S., where the practice is for the general agents to countersign all receipts passing through their agencies.

In the case of *Lynn v. Burgoyne* (Ky., 1850), under a fire pol., it was held that where it is stipulated in a pol. of ins. "that it shall not be valid until countersigned by the agent," a pol. signed by "B. for the agent" is void.

By an Act of the Canadian Parl.—6 Wm. IV. c. 18 (sec. 19)—it is provided "that any pol. signed by the president, and countersigned by the sec., but not otherwise, shall be deemed valid and binding on the co." In the case of *Perry v. Newcastle District Mut. F. Ins. Co.*, which came before the Q.B. of Upper Canada in 1851, it was held, under the above Act, that a pol. issued without the president's name was invalid, and that the Co. could not be directly sued upon it; they could be compelled, however, upon the defect being noticed, to execute a valid pol. of the proper date, and their by-law would estop them from objecting that the pol. was not in fact executed before the loss. The insured having taken out a pol. thus unsigned, and paid a sum in cash, and also a portion of the prem. note in cash, with a full knowledge of the defect, could not recover the prem. so paid.

In an action upon a life pol., *Meyers v. Keystone Mut. Life Ins. Co.* [27 Penn. State 268], where it was expressly provided in the pol. that it should not be binding upon the Co. until countersigned by certain designated agents of the Co.:—*Held*, that the contract was to be completed when delivered by the agents of the Co., and that the countersigning by the agents was the appointed evidence of its proper delivery; but that the final delivery by letter, being also by writing, might be treated as equivalent to such countersigning.

In the case of *Badger v. American Popular Life Ins. Co.* [103 Mass. 244] the pol. contained the following clause: "Nor shall this pol. be in force until it is countersigned by A. F. Badger, agent at Boston." The agent received the pol., but did not countersign it:—*Held*, that the pol. did not take effect until countersigned, and that the motives of the Co. for inserting the condition and of the agent for neglecting to comply with it were wholly immaterial, and would not be inquired into.

COUNTIES UNION [for Ins. of] LIVES AND PROPERTY.—This co. was projected in 1851; and actuary and sec. were appointed. But we do not hear of its development into an actual co.

COUNTIES UNION ASSU. CO., THE.—Founded in 1852, with an authorized cap. of £100,000, in 10,000 shares of £10 each, "for providing against the principal casualties of domestic life; for extending the benefits of L. assu. to diseased lives; to persons about to reside in foreign countries; to merchant seamen and military men; for securing the maintenance and education of children; for assuring trustees of public property against loss; for securing benefit sos. against ultimate failure; and for loans on pol. on the lowest admissible terms; together with L. assu. bus. in general." "The assured parti. in three-fourths of the profits." The prosp., then going into detail, further said:

The *Counties Union Assu. Co.* has been formed for the purpose of L. assu., embodying the latest and most valuable improvements in L. assu.; and to offer them to the public with the utmost convenience and advantage.

The prem. were not subjected to a dangerous reduction for the sake of competing with other offices; but were calculated with great care on the basis of the *English L. T.*, which gives the result of facts relating to the expectation of life, not in a particular town or district, but throughout the whole country, as collected by the Reg.-Gen. under the authority of H. M. Gov. The rates of prem. are by this arrangement so determined as to place the assured on an equal footing as to payments and benefits. *The Assu. Fund is fully adequate to all demands which can be made upon it, even at the period of greatest pressure. At the same time a sufficient profit to the shareholders and a considerable bonus are secured to the assured.*

The Co., desirous of meeting the increased call for assu., not only on lives, but in its varied applications, has embraced in its plan some peculiar features as yet scarcely noticed, or, at most, very imperfectly provided for.

Then follows in some detail a statement of the several branches of ins. as enumerated in the para. already quoted; and which will be spoken of again under their proper heads. "Assu. will be effected against railway or any other accidents."

The Earl of Ducie was one of the Trustees of the Co., as he afterwards realized to his cost; Mr. Henry Owen was Sec. The Co. passed into liq. in 1853, with about £20,000 liabilities.

COUNTING MACHINES.—See CALCULATING MACHINES.

COUNTRY LIFE.—The advantages of country as against town or city life are often referred to in these pages. We propose to discuss the matter in some detail under **TOWN LIFE**.

Mr. Hammick has pointed out that the terms "Town" and "Country" must be understood to designate prevailing and not exclusive characters; as the town districts include suburbs and open spaces, and the country districts include all the smaller provincial towns.—*Social Science Rep.*, 1859.

COUNTY CATTLE INS. CO., LIM.—Founded at Hertford in 1865, with an authorized cap. of £50,000, in 5000 shares of £10. The Co. was most respectably constituted: the late Marquis of Salisbury was one of its promoters, and its President; Mr. J. W. Chesshyre was the actual founder of the Co., and its Man. In the early years of the Co., when the cattle plague in various parts of the kingdom stimulated the farmers and stock-owners in other parts of the country to ins., the Co. did a considerable bus., and made money. This danger passed away: those formerly ins. became apathetic. The bus. dwindled, and during 1872 it was resolved to close the affairs of the Co. by a voluntary liq. The shareholders have received a return of the whole of their paid-up cap., and a bonus of about 90 p.c. in add., while the dividend during the existence of the Co. averaged 7 p.c. It is very rarely that such a fortunate "get out" has fallen to the lot of any shareholders in a cattle ins. co. Great credit is due to the management, which was entirely gratuitous—neither directors nor man. taking any remuneration. The cost of the formation of the Co. was £35. Its first year's prems. reached £1700.

COUNTY AND CITY OF CORK GEN. ANNU. ENDOWMENT SO.—Founded in Cork in 1831, under the provisions of the Friendly Societies Acts. The object of the So. is "to provide a fund by subs. of the several members, for paying annu. to the nominated widows, children, parents, sisters, nephews, nieces, and other relatives of deceased members." The number of members is limited to 10,000. The plan of the So. is a fixed ann. subs. (with an add. payment at the time of entry for disparity of age between member and his nominee), while the annu. to be received depends upon an actuarial investigation to be made at the end of each 5 years, "for the purpose of determining the rate of annu. to be granted during the following period of five years." The scale of prems. or subs. now in force for each annu. or share varies with the age. The following is a quinquennial abstract of it:

Under age 25 ...	£2 10 0	Under age 45	£4 15 0
" 30 ...	2 18 0	" 50	5 7 0
" 35 ...	3 11 0	" 55	6 0 0
" 40 ...	4 3 0	" 60	6 12 0

The "Disparity T." for Class I., viz. members under 25, charges £1 "for every year of disparity between the member and the nominee"; and increases quinquennially at the rate of 2s. 6d.; so that in the 8th class, between ages 55 and 60 it is £2. No new member can be admitted after age 60; but previous members may, under certain circumstances, subs. for new shares or annu. when above that age.

The annu. granted—which during the period 1856–61 was fixed at £16 10s. per share—is now (1873) reduced to £12 13s., upon the valuation of Mr. Robert Tucker. It was at this same amount during the preceding quinquennium.

The 4th ann. rep. is now before us, and contains some interesting details. The amount of annu. paid during the year ending 30th Sept. 1872, was £3624 4s. 6d.; this amount was paid under 290½ annu. receivable by 202 annuitants, leaving a fund in hand of £42,540, nearly the whole of which is invested with the Commissioners for the Reduction of the National Debt, and realizes int. at the rate of £3 16s. 0½d. p.c.

Since the formation of the So. there have died 323 members, leaving 354 annuitants chargeable for 519 shares; 139 annuitants have died, holding 203 annu.; 37 annuitants have re-married, holding 47 shares. The total amount paid to annuitants amounted to £109,779.

The So. appears to be under sound and economic management; and has been productive of a large amount of good. We trust its usefulness may continue to increase. Mr. James R. Wherland, M.D., combines the offices of Physician and Secretary to the Society.

COUNTY AND CITY OF DUBLIN WIDOWS' FUND, AND GENERAL ANNU. ENDOWMENT SO., founded 1837.—See **DUBLIN WIDOWS' FUND**, etc.

COUNTY AND CITY OF PERTH FIRE INS. CO.—Founded at Perth in 1836. Its bus. was never large. It collected in F. ins. duty in 1836, £740; its largest duty was in 1843, when the amount reached £887. In 1844 its bus. was trans. to the *Ins. Co. of Scotland*. Mr. Charles Williams was the Sec. of the Co.

COUNTY COURT ADMIRALTY JURISDICTION ACT, 1868.—The 31 & 32 Vict. c. 71.

COUNTY COURT ADMIRALTY JURISDICTION AMENDMENT ACT, 1869.—The 32 & 33 Vict. c. 51.

COUNTY FIRE OFFICE, THE.—Founded in 1807, by the late Mr. J. T. Barber Beaumont, under the title of *The Association of the County Fire Office*. The authorized cap. of the Co. is £400,000, in 4000 shares of £100. The orig. scheme of the Co. was to combine a number of separate counties into a compact for the purpose of gaining the protection of a solid fire ins. asso. in the place of those local offices which were very generally formed

in the early part of the present century, and shared a very ephemeral existence. These counties, stating them in their alphabetical order, were Bucks, Bedford, Berks, Hertford, Leicester, Lincoln, Middlesex, Northampton, Nottingham, Oxford, Warwick, York. Boards of directors were formed in each of these counties, and an ann. meeting was also for many years held therein respectively. The shares of the Co. were also allotted among these several counties in certain fixed proportions. The Co. has power to grant and purchase annuities.

This was the first fire ins. co. estab. in Gt. Brit., or prob. anywhere else, upon the *mixed principle*, which is usually associated with life ins., but which is equally applicable to fire and some other branches of ins. bus. An early prosp. of this Co. describes the principle as that "of combining the security of an adequate permanent cap. (in add. to the fluctuating funds arising from the premis.) with the beneficial rule of returning, at stated periods, the surplus of the ann. premis. to the contributors, after paying losses and expenses." The return is made to persons remaining insured for 7 years, whether under septennial or ann. pol. A person having a claim under his pol. does not thereby lose his right to parti. in the surplus of that same period.

The operations of the Co. have been most successful from the commencement. The amount paid up per share was orig. £10. This has been supplemented by bon. add. until it now stands at £400,000; while the market price of the shares is £75. The subs. and paid-up cap. together stand at £700,000.

In 1813 the Co. obtained a special Act of Parl.—54 Geo. III. c. 11—*An Act to enable the Company of the County Fire Office to sue and be sued in the name of their Managing Director, or any other Director*. Royal assent, 20th Dec. 1813. The preamble recites:

Whereas several persons have formed themselves into an asso. or co. under the name of *The Asso. of the County Fire Office*, and have subs. or raised considerable sums of money, in order to effect ins. against life or damage by fire; and to grant and purchase annu.: And whereas the public hath been greatly benefited by the formation of such inst. with a competent cap., and a considerable revenue is derived to His Majesty therefrom: And whereas difficulties have arisen, and may hereafter arise, in recovering debts due to the said asso. or co. called the *County Fire Office*, and also in prosecuting persons who may steal or embezzle the property of the said asso. or co., or who may commit or be guilty of any other offence against the said asso. or co., since by law the individual members of the said co. in such cases sue and prosecute by their several and distinct names and descriptions: Wherefore, for obviating and removing the difficulties aforesaid, may it please Your Majesty that it may be enacted; and be it enacted, etc.

After the passing of the Act all actions might be carried on in the name of the Man. Director or other Director. Names of man. and other directors from time to time to be enrolled in the High Court of Chancery. No action to be brought until the memorial is enrolled. Act not to relieve the Co. from its responsibilities otherwise than is stated therein. The Act to be deemed and taken as a "Public Act."

Previous to 1820 the bus. of the Co. was carried on at offices in Southampton Street, Strand. In the *European Mag.* for that year there is an account of the completion of the new building which constitutes the present office of this Co., as also of the *President Life*. The design of the building appears to have been furnished by the founder of the Co., and it was carried out by Mr. Abraham, the architect:

The proportions and ornaments of the columns and entablature are correctly taken from the portico of the Pantheon at Rome, and exhibit an admirable copy of Roman architecture. The classical character of the building, however, is rendered subservient to purposes of internal convenience, and is given at a moderate addition of expense to that of a plain building of a similar size.

We are told in another account of the building, *Repository of Arts and Literature*, that it was erected for £8900.

The first dividend paid to the shareholders and the first fees awarded to the directors came together in 1821, after the second septennial division of profits among the pol.-holders. This wise reservation of the early resources of the Co. may be regarded as one of the primary causes which have led to the enlarged success of its financial operations.

In the case of *Thurtell v. Beaumont*, which came before the Courts in 1823, the following were the facts, shortly stated:—On the 9th Dec. 1822, a pol. in the *County Office* was taken out in the name of Thomas Thurtell, for £2500, on goods in a warehouse in Watling Street. On the 26th Jan. following a fire took place. The circumstances were extremely suspicious—so much so that the claimant could not obtain the then usual certificate from two inhabitants of the parish that they believed that the fire was the result of accident. Thurtell brought an action against the Co., which was heard in June, 1823, in the Court of Common Pleas. The counsel for the Co. said:

No person could be more adverse to litigation than the directors of the *County F.* In proof of it he need only mention the fact that, in conducting one of the most extensive ins. businesses in the country, they had not, during a period of 17 years, entered a court of law with any claimant previously. But while they felt and acted in this way towards every honest claimant, they would act with vigilance and firmness in exposing and bringing to justice, as opportunity afforded, claimants of an opposite description. In proof of their groat—he might almost say of their indiscreet—liberality, upon the plaintiff's labours in vain to get the usual certificate in regard to the fire, the directors consented to waive the production of that document, although required by the conditions of their pol., and without which the plaintiff could not have appeared in Court, in order that the question might be tried on its merits.

The point relied on in the defence was that the goods had been removed from the warehouse before the fire. The evidence was conflicting, and the plaintiff obtained a verdict of £1900!

Later in the same year the Co. applied for a new trial, producing evidence of the strongest character to show that the former verdict had been obtained by means of perjury. On this occasion Mr. Justice Park remarked that Lord Mansfield had held that not even a conviction for perjury was ground for a new trial; and that Lord Ellenborough had also refused to have a rule made absolute because witnesses had afterwards been proved guilty of perjury. The rule for a new trial was, however, obtained on the Co. paying the costs.

Before this new trial could take place the case had assumed another aspect, viz. "The King on the prosecution of the *County Fire Office v. Thomas Thurtell and others.*" The indictment was against Thomas Thurtell, John Thurtell, William Ennison, and J. B. Snowden, charging them with intent to defraud the *County F. Office*. Only 3 of these persons were tried—John Thurtell we shall have occasion to speak of next. Thomas Thurtell and Snowden were found guilty, and were sentenced to two years' imprisonment. This was in June, 1824. The printed notes of this case are now before us, viz. *Rep. of the Proceedings on the Trial: The King on the Prosecution of the County Fire Office versus Thomas Thurtell and others. From the Shorthand Notes of Mr. Frazer, of Thavies Inn, etc.*

Regarding John Thurtell, as far back as Oct. 1823, he had been arrested on a charge (with Joseph Hunt and William Probert) of murdering Mr. Weare. Of this crime he was found guilty, and executed at Hertford in Jan. 1824. Before the trial Hunt had made a confession, in which occurred the following passage:

The reason why they wished Barber Beaumont to be destroyed was that they thought that he was the only cause of the money not being paid by the F. Office, and they feared he would urge the prosecution to be carried on for a conspiracy; and for several nights and days John Thurtell laid in wait for him with an air-gun, charged, in the neighbourhood of the F. Office. He generally took his station at the door of Mr. Ward's, the corner of Sherrard Street; and he set me to watch at the office door in order to ascertain at what hours Mr. Beaumont went in and out. If I discovered him, I was to run and give notice to Thurtell which way he went, and he was to follow and shoot him. I however could never make out which was Mr. Beaumont, for I did not know his person until some one pointed him out to me at the inquest. The air-gun resembled a knotted walking stick, and held no less than 16 charges. It was let off by merely pressing one of the knots with the finger, and the only noise was a slight whiz, scarcely perceptible to any one who might happen to be on the spot.

They were right in their surmise. It was Mr. Barber Beaumont who had defeated their plot, and who had been mainly instrumental in bringing the guilty parties to justice. [BEAUMONT, J. T. BARBER.]

The earliest fire duty returns of the separate offices date from 1824. This Co. at that date stood No. 5 on the list as regards amount, its returns in that year being £43,444. In the few following years some fluctuations occurred in the returns, regarding which a very full elucidation will follow. From 1829 the return shows steady and unvarying progress. The amount of farming stock ins. effected by the Co., and upon which no duty was payable for many years, was very large. The Co., we believe, never entered upon what are technically known as "Mill Risks"—cotton, woollen, and flax mills; and it also excluded certain other classes of special risks.

In 1826 there was pub. *Twelve Letters addressed to the Rt. Hon. Thomas Wallace, M.P., Chairman of the Commissioners of Revenue, Inquiry, by James Sedgwick, Esq., late Chairman of the Board of Stamps*; and in 1827 there was pub. *Letter the Fourteenth* between the same parties. In our biography of the founder of this Co. we have referred to an incident connected with the subject of these letters; but it will be necessary here to speak of the facts so far as they affect the hist. of this Office.

We shall draw our dates, etc., from official documents, condensing as far as possible. An affidavit of Mr. Barber Beaumont, made in 1828, sets out:

That until the month of May, 1825, the *County F. Office* was second to no similar estab. in the U. K. in honourable character and in prosperity; but that at that period a report was put in active circulation that the *County F. Office* had been detected in frauds on the revenue to an enormous amount, and that an Exchequer prosecution was intended against the Office. This report defendant traced to Mr. Godfrey Sykes, Solicitor of Stamps, and he accordingly wrote to Mr. Sykes under date the 7th June, 1825, complaining of his conduct, and warning him of a conspiracy by certain disreputable persons to defame the *County F. office*—of the existence of which conspiracy he had evidence in his hands.

Of this letter no notice was taken. It is not very easy to discover the precise nature of the charge against the Co. The sum and substance of Mr. Sykes' evidence appeared to be this, "that whenever country collectors [agents of the *County*] failed, Mr. Barber Beaumont ordered lists to be made for returns of duty to the amount of which the agent had failed;"—"that this has been regularly done in the *County F. Office*, and has been well known—to the amount of about £2000 a year constantly." He added, that "since this (his inquiry) began, they (the *County F. Office*) are making out new books in the Office—complete new set of books."

The next step was that Mr. Dean, Comptroller of the Stamp Office, pursued an investigation of the books of the *County* for nearly a month, "receiving every assistance from the clerks in his inquiries," and he appeared to be quite satisfied at what he saw. Shortly after this summonses were issued by the Commissioners of the Revenue Inquiry, requiring the clerks of the *County* to appear before them immediately, with the books and papers of the Office:

To this inquisition the defendant and the other directors of the *County F. Office* might properly have demurred, as the law placed the control of the duty accounts of the F. offices expressly in the hands

of the Commissioners of Stamps; but defendant saith that he was so eager to submit the affairs of the County F. Office to any investigation that might be proposed, in order to vindicate the character of the Office and himself, that he immediately despatched the clerks and 4 coach loads of books and papers to the said Commissioners for examination.

During the progress of this inquiry Mr. Beaumont wrote various letters to the Commissioners, expressing "his earnest desire that the subject of accusation might be thoroughly probed, and that he himself might be examined." He was so examined, "and the Commissioners appeared perfectly satisfied with the result, and told him he might have the County F. Office books returned to him whenever he pleased, as they had no further occasion for them." Nevertheless rumours continued that the idea of a prosecution was not abandoned, and Mr. Beaumont wrote to the Commissioners of Stamps, and to the Lords of the Treasury, to be informed of the precise nature of the charges entertained. Soon after which (1826) a report was laid before Parl., in which "he found himself stigmatized as having committed frauds upon Gov. in such a manner as almost to amount to a capital felony; and also found that as these pub. bore the authority of a Parl. report, and the appearance of legal evidence, they obtained temporary credit with a large portion of the public."

Defendant further saith that the bus. of the County F. Office, which previously had regularly and uninterruptedly increased, then fell off to a considerable amount; and that the integrity of the defendant's character, which had never before been called in question, then became a subject of general discussion and public controversy. That in add. to the imputation of excessive frauds pub. as the evidence of Mr. Godfrey Sykes, Mr. (now Lord) Wallace pub. his own remarks on defendant in such expressions as the following:—"His (defendant's) continuing in the management of this concern depends upon the success with which he appears to conduct it,"—"therefore the great object is to throw dust in the eyes of the persons on whom the appointment depends." And again in the report: "It would be difficult to account for such a deviation from the general practice—the practice of deferring the payment of duty on county ins. beyond the period limited by law—if it had not the effect of giving to that office (the County) the appearance of doing more bus. than it really did," *which effect is positively denied in the evidence, and in fact did not exist.*

Defendant saith that feeling that he must have abandoned all claim to honourable character, and become an outcast from society, if he had silently admitted to aspersions so heavy and multiplied, he, in conjunction with the other directors of the County F. Office, lost no time in claiming the protection of the laws; *but this appeal was made in vain.* The evidence of Mr. Godfrey Sykes, the principal witness, appeared to be made from the hearsays of an unnamed informer, *and was qualified as being his suspicions only,* . . . and that Mr. (now Lord) Wallace was deemed to be *privileged by his office.*

They then tried to prosecute a discarded clerk, who, they were informed, had made various untrue statements, but were denied the names of the Commissioners before whom he gave his evidence. A general meeting of the shareholders and insured in the County was convened, Sir George Duckett in the chair, when it was resolved (*inter alia*):

3. That the refusal of the said Commissioners to disclose the technical facts necessary to complete a bill of indictment for perjury, which was to have been preferred against their informer at the last Oct. Sessions, is an obstruction to the course of justice which appears indefensible. 4. That a petition founded on the above resolutions and the facts alluded to be laid before the House of Commons. . . . 5. That the thanks of the meeting be given to the Board of Directors for convening this meeting, and to the Man. Director in particular for the able exposition which he has made of the injustice of the imputations cast on the Office.

A petition was prepared and presented to Parl. It bore the signature of Mr. Beaumont, "and 1596 other members of the Co." The petition contained the following remarkable passages:

That this statement [the statement of Mr. Sykes already quoted] by the aforesaid Commissioners as evidence, and printed and pub., to your petitioners' great dishonour and injury, upon the hearsay evidence of Mr. Sykes, who says he was told it by Mr. Mawe, his clerk, who is in partnership with Mr. Bignold of the *Norwich Union Office*, who says he had it from Mr. Hallam, late of the Stamp Office, and a director of the *Beacon F. Office*, who, it appears, was told it by Mr. Spike, the solicitor of the *Beacon F. Office*, who heard it from a person who refused to give his name, then employed by the *Beacon F. Office*, who had been a clerk in the *County F. Office*. . . . Mr. Sykes offers no proof whatever. . . . The discharged and confederating clerks were his witnesses; the clerks remaining in the *County F. Office* were long and rigorously examined by the chairman, but the only real facts established were these—1. That after an eager investigation of 29 cases of claims for returns of duty, in a defaulter's account at Edin., selected by the informer as most easily proved, an error was found in a solitary payment of 24s., which it appears the agent had failed to account for, he having died. . . . 2. That after an examination (by two persons appointed by the Commissioners) of *all* the claims for returns of duty in defaulters' accounts, the examiners report the gross amount to be £756 19s. 2d. . . . which averages £41 a year.

This petition was presented, but its object was defeated by Mr. Wallace assuring the House "that a prosecution of the County F. Office was then in progress, and that to act on the petition would be to interfere with the course of a pending legal proceeding."

Next in the course of events the Chairman of the County wrote to the Lords of the Treasury, beseeching them to give up the informer for trial, "and accompanying the application with affidavits from three accountants proving the falsehood of his evidence." Afterwards this clerk was given up; and it was then found that while Mr. Beaumont and the clerks of the County had been examined upon oath, the evidence of this informer had not been so taken—and hence no indictment for perjury would lie. Good old times, of which we hear so much!

Mr. Beaumont wrote to the Lords of the Treasury showing the result of certain laborious investigations of the accounts of the Office to be that the County had overpaid the amount of duty; describing to their Lordships the serious injury which the County suffered from the threat of an *Exchequer* prosecution being still suspended over them; and

calling upon their Lordships either to give effect to that threat, without more delay, or openly withdraw it! To this letter even he obtained no reply; and then it was that he sat down and addressed the letter to Mr. Wallace from which we have already quoted in our biography of Mr. Beaumont; and which Mr. Wallace did not attempt to disprove—but said it might excite to a breach of the peace. Could any man of Mr. Beaumont's position and honour have done less?

Only a month before this Mr. Sedgwick had concluded his correspondence with Mr. Wallace in the following words:

After this, sir, what plea have you to offer—what defence have you to urge—in palliation of an attack at once so deliberate and so atrocious? As for myself, I leave this exposure of you to the public comment; and for the present I lay down my pen. Deeply aggrieved as I have been by the flagrant injustice of your proceedings towards me, it requires a temper well disciplined to keep down the feeling it excites; but there are occasions—and this is one of them—when the fervour of our indignation is cooled by our contempt for the object of it.

The next proceeding was that three accountants, “appointed under the hands and seals” of the Commissioners of Stamps, commenced another investigation—the *third*—of the affairs of the *County*, examining and making extracts from the books of the *Office from the commencement of its bus. in 1807*. Upon this task they were daily employed for a period of six weeks, to the great interruption of the bus. of the *Office*, and to the detriment of its position while matters remained in uncertainty. All this, however, the Directors cheerfully submitted to. The next stage was the filing of a bill, under which Mr. Beaumont was called upon to answer minute and elaborate questions upon the origin and hist. and termination of 1170 pol., in preparing answers to which he and two of his clerks were laboriously employed nearly the whole of one winter. Need we wonder that under this unjust and most protracted inquiry Mr. Beaumont's health broke down, and that he became seriously ill? But the end and the victory were at hand. The answers were completed and delivered upon oath. They proved:

That during the 18 years' transactions brought in question, *not a single pol. or renewal of a pol. had been issued*—and nearly a million had been issued—*whereon the duty charged had not been duly accounted for and paid to the Stamp Office*; that the *County F. Office* (which had paid in amount of duty nearly £500,000 sterling) *had never been a shilling in arrear*; but, on the contrary, had been constantly about £10,000 more in advance than they need have been, had they availed themselves of the deferred but illegal mode of payment of duty adopted with impunity by other F. offices; by which prompt mode of payment the *County F. Office* had given an advantage of £8000 to the revenue in the value of int.; and that certain errors made by the two bad clerks who had been dismissed for their misconduct *were to the prejudice of the County F. Office, and in favour of the Stamp Office*; and lastly, *that after a careful examination of those errors, a balance of £164 9s. 2d. overpaid remained due from the Stamp Office to the County F. Office, which sum the County F. Office now claim from the Stamp Office under a process in the Exchequer.*

Such was the ending of this infamous conspiracy against the credit of the *County F. Mr. Beaumont* fought the good fight and won. Mr. Wallace became elevated to the Peerage. If *that* was to be regarded as the reward for his part in this proceeding, perhaps it was not too great for the degradation involved:

Ille cruceum sceleris pretium tulit, hic diadema.—*Horace.*

In 1841 the founder of the Co. relinquished his post of Man. Director. His son, Mr. J. A. Beaumont, has since reigned in his stead. He is ably assisted in the conduct of the bus. by Mr. Geo. W. Stevens, the Sec.

Since 1849 the directors have been enabled to declare that the returns shall not depend upon and vary according to the profits of the year, but shall be fixed at the rate of 25 p.c., and paid out of a fund specially provided for that purpose. This is to pol. of 7 years' standing. Profits are not distributed upon “hazardous ins.” or upon “tariff risks.” We observe from the prosp. of the Co. that one pol.-holder has received in returns upon his pol. £596 7s.; another nearly £200; and a third £164.

In 1868 the Co. stood third on the list of Lond. offices as to its duty return; the amount collected (on the decreased scale then in force) being £49,510.

The Co., of late years especially, has entered upon that steady, substantial phase in which it “makes no history.” The motto which it may, as assuredly as any Co. that ever existed, inscribe over its portals is “Success.”

COUNTY HAILSTORM INS. CO.—Founded at Hertford in 1848, with an authorized cap. of £50,000, in 5000 shares of £10, the greater part of which are subs. The founder of the Co. was Mr. J. W. Chesshyre, who has since been its Man. Director. The operations of the Co. have been carried on with considerable success. The causes of this success have been several. In the first place there was no promotion money paid; in the next, the int. to shareholders was limited to 4 p.c. until a Reserve Fund of £10,000 had been accumulated. Since then a div. as high sometimes as 45 p.c. on the paid-up cap. has been declared. The income of the Co. varies from £6000 to £7000 p.a. Up to 1872 the Co. had paid in losses by reason of damage from hail upwards of £35,000. The price of the shares is about 400 p.c. on the amount orig. paid up. [HAIL INS.]

COUNTY LIFE ASSU. CO.—Founded in 1863, with an authorized cap. of £1,000,000, under the following circumstances. The promoter was Mr. W. H. Preston, and in the art. of asso. it was provided that he should be the first Man. or Managing Director and Act. of the Co.; that he should have a sum of £5000 as promotion money, and 10 p.c. on the gross income of the Co., and £3500 in case of the Co. amal. with any other Co.

The Co. was regis. on 9th Jan. 1863, and in the month of June same year the directors who had subs. the mem. of asso. held a meeting, at which they passed a resolution that the objects of the Co. could not be successfully carried out, and that no shares should be allotted, and no further steps taken towards the formation of the Co. They gave notice of this resolution to the other subscribers, and also to Mr. Preston. Mr. Preston, however, took no notice of this resolution, and, being joined by Mr. E. H. Smith, proceeded to choose fresh directors in the place of those who declined to act; and then to appoint a sec. and allot shares. Bus. was commenced, and about 350 pol. issued. In Jan. 1866, a meeting of shareholders was called, and it was resolved that the bus. should be trans. to the *National Standard L.*, and the Co. dissolved. The *National Standard* took over all the policies, except two which had become claims, and in respect of one of these, held by the *Briton L.*, proceedings were taken in Equity. In July, 1867, an order was made for compulsory winding up of the Co.; and out of the proceedings of the liq. arose the case, *Re the County Life*; and on an appeal the following judgment was delivered (Jan., 1870):

The orig. directors might at any moment, if they had chosen, have obtained an injunction to restrain the persons who were using the name of the Co. from so doing, and might have put an end to the Co. It was not too much to assume against them that they knew that bus. was being carried on in the name of the Co. The persons who effected the pol. did so in the ordinary course of bus., knowing nothing of what had occurred in the internal affairs of the Co., and the pol. on the face of it was strictly in accordance with the requirements of the art. of asso. of the Co. The law in such a case was perfectly plain, and it was well that there should be no mistakes about it. If it were different from what it is, the operations of these cos. could not go on at all, for every person dealing with them would be bound to inquire whether the directors had been duly appointed. The law was plainly this: A stranger must be taken to have read the general Act of Parl. and the art. of asso. of the Co. and nothing more. Then, if he knows nothing to the contrary, he has a right to assume, as against the Co., that all matters of internal regulation have been duly complied with. The whole argument of the appellants in the present case amounted to this,—that some internal regulations of the Co. had not been duly complied with; that the directors had not been duly appointed. The Co., however, were bound by what occurred in the ordinary course of bus., and the persons who were acting *de facto* as directors might well, as far as a stranger could know, have been also acting *de jure*. The Co. were, therefore, bound by the pol., and the appeal must be dismissed with costs.

COUNTY OF LANCASTER LIFE, ENDOWMENT, AND LOAN Co.—This is another of the North-country projects of the year 1845, but it appears to have died an early death.

COUNTY MARINE Co., LIM.—Founded in 1866, with an authorized cap. of £100,000, in 25,000 shares of £4; first issue £10,000 fully subs. The Co. had this distinguishing feature, that it took marine risks from country brokers and provincial ins. agents throughout the U.K. The prosp. said:—"This Co. has been formed chiefly with a view to facilitate for residents in the provinces the effecting in Lond. of their marine ins. The advantages of centralization in this branch of ins. are too obvious to require comment." The object of the Co. was to obtain the better class of coasting risks. In add. to ordinary marine bus., it undertook the ins. of passengers at sea from death by any cause, or by accident only; and mariners against death from any cause, or by accident only; also mariners' effects by voyage or by time. [MARINERS, INS. OF.] [MARINERS' EFFECTS, INS. OF.] The Co. was founded mainly at the instance of Mr. J. W. Conrad Cox, who became its underwriter; he was assisted in the formation of the Co. by the present writer, who paid £1000 for the experience he so obtained. The Co. carried on bus. for about 2 years, lost all its paid-up cap., and passed into voluntary liq. in 1869.

COUNTY MUTUAL LIFE ASSU. Co.—Founded at Hertford in 1849, by Mr. J. W. Chesshyre. The estab. of the So. was made dependent upon the obtaining good lives to ins. for an aggregate of £30,000. This was accomplished, and the So. was founded at a cost not exceeding £100. It carried on a limited bus. down to 1853, when, under the influence of something like a panic, in view of the *expected death* of a large pol.-holder (who is alive now!), its pol. were trans. to the *City of London*; and by the trans. of the bus. of the last-named co. to the *Eagle* in 1859, the pol.-holders found their interests greatly benefited.

COUNTY OF SOUTHAMPTON INVESTMENT, AND LOAN, FIRE AND LIFE INS. Co.—Projected in Southampton in 1853 by an "esquire" and an "accountant," for the purpose of carrying on life, fire, loan, and guarantee bus. It did not advance beyond prov. regis.

COUP-DE-SANG.—Blood-stroke. An instantaneous and universal congestion, without any escape of blood from the vessels. This is a form of hæmorrhage, occurring in the brain, the lungs, and in most of the other organs of the body.—*Hoblyn.*

COUP-DE-SOLEIL.—*Sun-stroke.* An affection of the head produced by exposure to the rays of the sun. [SUN-STROKE.]

COUPONS.—Certificates of int. due, attached to foreign transferable bonds, given for a term of years; designed to be cut off and presented for payment as the int. falls due. They are occasionally attached to home securities.

COURCY, ALFRED DE, pub. in Paris in 1836, *Théorie des Annuités viagères et des Assurances sur la vie, suivie d'une collection de tables relatives à ces matières.* Traduit de l'anglais de Francis Baily, et publié par la Compagnie d'assurances générales sur la vie. This is an excellent translation into French of Baily's standard work. It omits the controversial notes, but contains the tables and the appendix describing and explaining Barrett's discovery of the method of calculating commutation columns.

COURT-MERCHANT.—The Merchant-Court or Court-Merchant is a kind of judicatory power invested in merchants, chosen for that purpose, in several parts of Europe, in order to decide and determine in a summary way all differences and litigations among themselves and their dependents. “Courts of Merchants,” said Carey [*Carey on Trade*, 1696], “should be erected for the speedy deciding all differences relating to sea affairs, which are better ended by those who understand them than they are in Westminster Hall, where all things are tried by the nice rules of law : and therefore after much attendance and expenses are often referred by the judges to such as are conversant in trade. By this means merchants would soon see short ends to their differences ; but no general rules can be given for these Courts, which must be settled as they suit the conveniences of trading cities.” [CHAMBERS OF INS.] [LAW-MERCHANT.] [POLICIES OF INS. COURT.]

COURT OF POLICIES OF INS.—See CHAMBERS OF INS. ; POLICIES OF INS. COURT.

COURT, THE.—In speaking of the winding up of companies and all coincident matters, the term “the Court” is constantly used. It means—in the case of cos. regis. in Eng., the High Court of Chancery ; in the case of a co. regis. in Ireland, the Court of Chancery in Ireland ; in the case of a co. regis. in Scotland, the Court of Session, in either division thereof. The Life Assu. Cos. Act. 1870, furnishes this definition for its purposes.

COURVOISIER, ADOLPHUS, was Sec. of *Achilles* Brit. and For. Life on its estab. in 1841.

COVENANT.—An agreement, convention ; or promise, of two or more parties by deed, in writing, signed, sealed, and delivered, by which either of the parties pledges himself to the other that something shall be done, or stipulates for the truth of certain facts. He who thus promises is called a *covenantor* ; and he to whom it is made the *covenantee*.

COVENANT TO INSURE.—Under BUILDING LEASE we have shown the circumstances under which the “Covenant to Insure” arises. But in the case of an ordinary hiring of a house, otherwise than as “tenant by will,”—that is, from year to year,—the necessity for ins. against fire arises on the part of the tenant, because he will have to pay the rent during the term of his hiring, whether the house or any part of it, or any part of the premises, be burned down or not. But it is not usually left to the option of the tenant whether he will ins. or not ; because he might elect to take the risk in order to save the ins. prem., and in the event of fire pay his rent for the unexpired portion of the term or not ; and so let the loss or damage to the building fall upon the landlord. Of course an action for damages must lie ; but if the tenant were without sufficient means, the loss still comes back upon the landlord. In ordinary leases therefore, as well as building leases, the Covenant to Insure is usually—we may almost say invariably—inserted. The covenant generally runs in this form :

And he [the tenant] shall and will forthwith ins. the said premises hereby demised to the full value thereof in some respectable F. ins. office [or not unfrequently a particular office is named, with the words “or some other respectable F. office to be approved of by the said lessor”], in the joint names of the said lessor, his heirs [or] executors, administrators or assigns, and of the said lessee, his executors, administrators, or assigns, and keep the same so ins. during the said term ; and will upon the request of the said lessor, or his heirs, etc., or assigns, or his or their agent, show the receipt for the last prem. paid for such ins. for every current year ; and as often as the said premises hereby demised shall be burned down or damaged by fire, all and every the sums or sum of money which shall be recovered or received by the said lessee, his executors, etc., for and in respect of such ins., shall be laid out and expended by him or them in building or repairing the said demised premises, or such parts thereof as shall be burned down or damaged by fire as aforesaid.

Where there is a covenant to ins. for a specified sum, and a covenant to repair in general terms, the liability under the latter covenant is not limited to the amount of the ins. : hence it is of importance that the ins. should be sufficient to cover all possible damage for which the tenant can be liable. The tenant may cover his loss of rent during repairs or re-building by means of a specific sum ins. for that purpose under the same or any other pol. of ins. [RENT, INS. OF.] The remedy of the landlord is either by re-entry into possession of the property by reason of the forfeiture consequent upon non-ins., or by means of an action for damages.

These covenants are generally construed strictly by the Courts, as numerous cases in the books show. Thus, in the case of *Doe d. Pit v. Sherwin*, 1811, where a lessee covenanted to ins., and effected an ann. pol. in the usual form, allowing 15 days’ grace, which pol. expired on the 25th March, but did not pay the prem. for a renewal until the 25th April :—*Held*, that the covenant was broken by reason of the non-payment of the prem. on or before 9th April, and that the lease was forfeited on a clause of re-entry. Again, in the case of *Penniel v. Harborne*, 1848, it was held that under a lease with a proviso of forfeiture if the covenants be broken, forfeiture is incurred if the lessee covenants to ins. the buildings from time to time, and at all times, and leaves a part uninsured for two months after execution of the lease. And it is not any answer that the greater part of the premises are already ins. at the required amount by a pol. expiring at the end of two months, and that on its expiration a new pol. was effected, covering all the premises which were then ins. at the stipulated amount. So it was further *held*, in the same case, that if the covenant is to ins. in the name of *A. B. and C.*, and the lessor added his own name, forfeiture is incurred. So, again, if a lessee, having incurred these forfeitures (though the lessor has taken no step to enforce them), contracts to sell his term, the purchaser, on becoming acquainted with them, may refuse to complete his contract.

It is easy to see that with such strict rules of construction some cases of real hardship arose. The Courts of Equity were called upon to afford relief, and in many cases did so; but this really only, in one sense, increased the difficulty. The element of *uncertainty* became imported. Finally legislation became necessary.

In 1859 was passed the 22 & 23 Vict. c. 35,—*An Act to further amend the Law of Property, and relieve Trustees*; and therein, under “Pol. of Ins.,” is the following:

IV. A Court of Equity shall have power to relieve against a forfeiture for breach of covenant or condition to ins. against loss or damage by fire, *where no loss or damage by fire has happened*, and the breach has, in the opinion of the Court, been committed through accident or mistake, or otherwise, without fraud or gross negligence, and there is an ins. on foot at the time of the application to the Court in conformity with the covenant to ins., upon such terms as to the Court may seem fit.

V. The Court, where relief shall be granted, shall direct a record of such relief having been granted to be made by indorsement on the lease or otherwise.

VI. The Court shall not have power under this Act to relieve the same person more than once in respect of the same covenant or condition; nor shall it have power to grant any relief under this Act where a forfeiture under the covenant in respect of which relief is sought shall have been already waived out of Court in favour of the person seeking the relief.

VII. The person entitled to the benefit of a covenant on the part of a lessee or mortgagor to ins. against loss or damage by fire shall, on loss or damage by fire happening, have the same advantage from any then subsisting ins. relating to the building covenanted to be ins., effected by the lessee or mortgagor in respect of his interest under the lease or in the property, or by any person claiming under him, but not effected in conformity with the covenant, as he would have from an ins. effected in conformity with the covenant.

VIII. Where on a *bonâ fide* purchase, after the passing of this Act, of a leasehold interest under a lease containing a covenant on the part of the lessee to ins. against loss or damage by fire, the purchaser is furnished with the written receipt of the person entitled to receive the rent, or his agent, for the last payment of rent accrued due before the completion of the purchase, and there is subsisting at the time of the completion of the purchase an ins. in conformity with the covenant, the purchaser, or any person claiming under him, shall not be subject to any liability by way of forfeiture or damages, or otherwise, in respect of any breach of the covenant committed at any time before the completion of the purchase, of which the purchaser had not notice before the completion of the purchase; but this provision is not to take away any remedy which the lessor or his legal representatives may have against the lessee or his legal representatives for breach of covenant.

IX. The preceding provisions shall be applicable to leases for a term of years absolute, or determinable on a life or lives, or otherwise, and also to a lease for the life of the lessee or the life or lives of any other person or persons.

This is known amongst lawyers as “Lord St. Leonards Act.”

In 1860 there was passed the 23 & 24 Vict. c. 126, which gives to Courts of Law the same powers which the last-named Act gave to Courts of Equity; and under “Relief against Forfeiture” is the following:

II.—In the case of any ejectment for a forfeiture for breach of a covenant or condition to ins. against loss or damage by fire, the Court or a Judge shall have power, upon rule of summons, to give relief in a summary manner, but subject to appeal as hereinafter mentioned, in all cases in which such relief may now be obtained in the Court of Chancery under the provisions of an Act . . . [the last recited] . . . and upon such terms as would be imposed in such Court.

III.—Where such relief shall be granted, the Court or a Judge shall direct a minute thereof to be made by indorsement on the lease or otherwise.

It was decided in the case of *Hickman v. Isaacs*, 1861, that where there was a covenant not to carry on any noisome or offensive trade, the word “dangerous” not being added, the deposit of lucifer matches to such an extent as to render the premises uninsurable was no breach of contract to ins.

Those who desire to be further informed on this interesting and important subject may with advantage consult Bunyon’s *Law of Fire Ins.* The law in the U.S. appears to run on all fours with our own; although of course leaseholds are much less general there than with us. [FIRE INS. MONEY, APPLICATION OF.] [LEASEHOLDS.]

COVENTRY AND WARWICK FIRE INS. CO.—Founded at Coventry in 1836. It had a very short career, for in 1839 its bus. was transferred to the *Sun*. Its F. duty return in 1837 was £369; in 1838, £429.

COVERTURE.—The condition of a woman during marriage, because she is then under the cover, influence, and protection of her husband.

COW CLUBS.—Before the bus. of cattle ins. was undertaken by joint-stock cos. there were numerous local mut. asso., known as “Cow Clubs,” whereby the members formed a contributionship for the purpose of mut. indemnity. They were subject to all the disadvantages of such asso. [CATTLE INS.]

Miss Martineau, in an art. in *Once a Week*, 1859, entitled “Dairy and Bacon,” speaks of ins. the lives of cows, and says:

The test is the health of the animals; and by all I have been able to learn, stall-fed cows, properly managed, live longer, give more milk in the long run, have fewer illnesses, and are better tempered than those which are treated in the ordinary method of old-fashioned farming. When cow L. ins. sos. become as numerous as they ought to be, their T. will soon show whether stall-feeding is favourable to life and health, or the contrary. Meanwhile the world is grievously in want of agricultural statistics in that department, as in every other.

COWAN, ROBERT, M.D., “Prof. of Medical Jurisprudence and Police in the University of Glasgow,” read before the British Asso., 1840, a paper: *Vital Statistics of Glasgow, illustrating the Sanatory Condition of the Pop.* [GLASGOW.]

COWIE, H., Sec. of Lond. office of *National Marine* of Australia.

COWPOX.—The smallpox of cattle. The vernacular for *vaccinia*, from its having been derived from the cow.

COX, JOHN POPE, Sup. of Agents for *Lond. Guar. and Accident Ins. Co.* In 1853 he promoted the *Official, Mercantile, and General*. In 1855 he became Sec. of *English Widows' Fund*, and remained in that position down to the amalg. of the co. He some years subsequently became Sup. of Agents for the *Gresham*.

COX, JONATHAN, was Sec. of *Steam Boiler Ins. Co.* in 1858.

COX, J. W. CONRAD, was for a short period, in 1866, underwriter of the *Accidental Marine*. At the close of the same year he became one of the founders of the *County Marine*, and occupied the position of underwriter to that Co. during its brief career.

COZIC, M. HENRI, is the author of the account of a project for a *General Bank for Agricultural Ins.* in France in 1857, of which we have given some account under AGRICULTURAL INS.

CRAFT [from the Anglo-Saxon *craft*, a trading vessel].—It is now a general designation for lighters, hoys, barges, etc., employed to load or land any goods or stores. The term is unfortunately also applied in sea-phraseology to every kind of vessel in its turn. From an underwriter's point of view Craft signifies the small vessels, "lighters," by means of which the cargo is sometimes taken to or brought from the larger vessels lying in the stream, or where proper landing accommodation cannot be obtained. Where the risk of damage to cargo is intended to be insured while in this process, the "lighterage" clause is usually added. [LIGHTERAGE CLAUSE.]

CRAIG, J., Sec. and Joint Act. of *Edinburgh L.*, in which Co. he has held various official positions extending over a period of more than 30 years. He was trained to the bus. of banking.

CRAIG, JOHN.—A Scotch mathematician of the 17th century; and author of several works on Probabilities, etc. One of these was entitled: *A Calculation of the Credibility of Human Testimony*; but his chief work was *Theologia Christianæ Principia Mathematica*. The object of this curious tract is to apply mathematical calculation to the credibility of the Gospel history; upon which principle he maintains that the Christian religion must end, according to the *doctrine of chances*, in the year 3150, when Our Saviour will make his second appearance! Another writer speaks of it as a book in which the author seems to propose to convince the Jews and to convert infidels by the aid of geometry and algebra! This work was answered by the Abbé Hauteville. An ed. appeared at Leipzig in 1755, with a refutation, and a life of the author by J. G. Titius. Some of Craig's papers will be found in the *Phil. Trans.*

CRAIG, S., Sec. of *Rock Marine*, founded 1873.

CRAMP (from the German *Krampf*, contraction).—Spasm; sudden and violent contraction of the muscles.

CRAMSIE, F. C., Representative of the *London and Southwark* in Paris. He was trained to ins. bus. in the *Royal*; for several years he was at the head of the foreign department of the *Unity F.*; after which he entered upon his present engagement, which he has conducted with energy and success.

CRANIUM (properly *kranium*, from the Greek, the skull).—The skull or cavity which contains the brain, its membranes and vessels.

CRAWFORD, GEORGE, pub. in Rotterdam in 1803, *The Doctrine of Equivalents; or an Explanation of the Nature, Value, and Power of Money, together with their Application in Organizing Public Finance*. In two parts.

CRAWFORD, ROBERT.—This gentleman's name has been so prominently before the ins. world on various occasions that he may fairly occupy a little of our space. He was Man. of the *European* in Scotland from 1858 to 1865; he became in the last-named year a Director of the Co., and remained in that position until 1869. About the close of 1867 he was in the U.S., endeavouring to found a new L. ins. co.—the *European-American*—with a branch in Canada; it was said to be no part of the scheme to take over the English bus. of the *European L.*, although its U.S. bus. might be dealt with. The scheme did not mature.

In 1868 he prepared a *Bill to Amend the Law regarding L. Assu. Inst.*, and although he used considerable exertions with a view to induce some members of the House of Commons to adopt his measure, he did not succeed.

Towards the end of this same year he appears to have placed himself in an hostile attitude regarding the management of the *European*: for in a letter addressed to his colleagues, under date 7th Dec. 1868, he says:

I have attended the Finance Committee of the *European Assu. So.* every week during the last two months, and I have now satisfied myself—what I on many occasions predicted would be the case if a different course of management were not adopted—that our So. is in an insolvent condition. I have arrived at this conclusion, it is true, in opposition to the opinions or at least assurances of our man., act., and accountant; but I cannot longer be controlled by the views of these gentlemen. For the purpose of protecting the interests of the shareholders and pol.-holders, I shall move on Thursday, at a meeting of the Board, that a committee of investigation be appointed to examine into the position of the So.'s affairs, and to report.

In 1869, as we have said, he ceased to be a Director; but he continued to correspond with the Board on the affairs of the Asso. In one of his letters in that year he says to the Directors, who were then relying upon the large prem. income as a proof of the So.'s solvency:

It is to be regretted there are so many officials of ins. cos. who have obtained their appointments

merely as a "refuge for the destitute," and not because they possess the requisite practical or theoretical knowledge of the bus. of ins. They profess to believe (at least they endeavour to lead others to believe) that so long as there is a flowing bus. (a large prem. income), the co. is beyond suspicion. These persons should be educated in this knowledge, that increase in the amount of bus. only impairs the stability of the inst., unless the amount of funds shows a corresponding increase; and that in the amount of realized cap., well and safely invested, and not in the large prem. income, lies the true test of the position of an ins. co.

This, being all very true, still failed to convince the Directors of the Co., who alleged that Mr. Crawford was not acting *bond fide*. In the autumn of 1869 Mr. Crawford, having as he alleged, exhausted all other reasonable means, presented a *petition to wind up the Co.* This petition was dismissed. [EUROPEAN ASSU. SO.]

Mr. Crawford then entered upon a course of pamphleteering on a somewhat extended scale. We may indicate the titles of a few of these productions:

1. *Letter to the Pol.-holders and Annuitants of the European Assu. So. by a former Director and present Pol.-holder of the So.; with an Appendix, suggesting Appointment of a Board of Liquidation, and containing Actuaries' Rep. on affairs of So.*

2. Another pamphlet: *To the Pol.-holders of the European Assu. So.*

3. *Opinions of the Press and Actuaries in re the European Assu. So.; Discussions on Insolvency of L. Assu. Cos. at Inst. of Actuaries, and Extract from Mr. Crawford's Letter to Directors of the European Assu. So.; also Articles on Ins. Legislation.*

4. *Letter to the Shareholders of the European Assu. So., by Robert Crawford, Man. in Scotland of the European Assu. So. from 1858 to 1865, and a Director from 1865 till 1869, containing Extracts from Depositions of the Directors; of Mr. Walker, the Act.; Mr. Lake, the Man.; and Mr. Parminier, the Accountant of the European Assu. So.; and copy Letter to Mr. Sheridan, M.P. for Dudley.*

5. *Bill to Amend the Law relating to L. Assu. Inst., proposed to be introduced in the next Session of Parl.; with Opinions of the Press thereon. Also Opinions of the Press and Actuaries in re the European Assu. So. and the New York L. Assu. Co.; and Discussion on Insolvency of L. Assu. Cos. at Inst. of Act.*

6. *Opinions of the Press and Actuaries in re European Assu. So.; also Articles on Ins. Legislation. By Robert Crawford. 1872.*

We have not seen all the pub. Those that are before us are particularly confused and unconvincing.

CRAWFURD, JOHN, prepared a paper, which was read at the British Asso. Meeting at Swansea, 1848, on the *Vital Statistics of a District in Java*. [JAVA.]

CREDIT PREMIUMS.—The system of allowing some portion of the prem., as say *one-third* or *one-half*, to remain unpaid for a given period, is sometimes of real advantage in cases of monetary arrangements where L. ins. is made available by way of collateral security. But to induce a pol.-holder intending to ins. for the benefit of his wife or family to enter upon a system of credit prem. is generally in plain terms no more nor less than a delusion and a robbery. The pol. is from the commencement burthened with a charge which in the end will frustrate and destroy its vitality, and therefore its benefits. Are such pol. of any advantage to the office? Do the *good* lives ever pay up the accumulated arrears?

In reference to the "mode of proof" under such pol., when the co. passes into liq., Lord Cairns, in the *Albert* arbitration, laid down the following principle:

8. Where payment of a prem. or prem. on a pol. is suspended by an arrangement between the assuring co. and the pol.-holder, subject to the payment of int., the amount of the suspended prem. or prem. and int. is not a personal debt recoverable from the pol.-holder, but is to be deducted and retained out of the sum payable in the liq., as or by way of dividend on the amount of the valuation of the pol.

9. The like rule applies in case of prem. and int. outstanding under a half-credit clause in a pol.

CREDITON, DEVON.—This town, in which the houses and buildings were formerly almost entirely covered with thatched roofs, has on several occasions suffered severely from fire:

1743—About 450 houses were destroyed by fire.

1769—The town was nearly entirely destroyed.

There has been a more recent disaster, the date of which we cannot ascertain.

CREDITOR.—A Creditor has an insurable int. in the life of his debtor; and may continue the pol. for his own benefit after the debt is paid. [DALBY v. INDIA AND LOND.] [INSURABLE INT.]

CREDITORS OF INS. ASSO., AND THEIR REMEDIES.—The ordinary remedy of a creditor under a pol. of ins. is by action at law. He must first estab. his claim by this means [CLAIM]; and he may then call in the aid of the Court of Chancery to recover the money. Cases occasionally arise in which the machinery of the Court of Equity has to be set in motion in the first instance.

If the claim be against a corp.—that is, against an incorporated co., properly so called—[INCORPORATED COS.], the remedy of the creditor is against the funds and property of the corp. only, and not against the share or stockholders, however rich and numerous they may be. The creditor may press his judgment to execution in the ordinary manner; or he may proceed to have the corp. dissolved, and its affairs liq. by the Court of Chancery.

If the claim be against a corp. created by letters patent under the 4 & 5 Wm. IV. c. 94 (1834), or the 7 Wm. IV. & 1 Vict. c. 73 (1837) [LEGISLATION], the remedy

will be against the assets and property of the corp. first, and these being insufficient, then against the members (shareholders) to the extent of their liability as prescribed by the terms of their incorporation.

If against an asso. or partnership constituted by deed, where the liability of the members is entirely unlimited, then (unless precluded by the form of contract embodied in the pol.) either against the funds of the asso. or against any one or more members at option. The member so sued and recovered against has his remedy against the other members or partners for *pro rata* contribution. The latter remedy does not appear to exist against cos. regis. under 7 & 8 Vict. c. 110 (1844).

If the asso. be entirely *mutual*, then the remedy is against the funds of the asso.: each pol.-holder or member being liable to be called upon indefinitely (in the absence of any contract to the contrary) to contribute his proportion of the amount required; and if other members fail to contribute their *quota*, those who can pay must contribute a larger proportion.

If the asso. be constituted under the *Limited Liability* Laws, then no remedy can be taken against individual members. If the funds of the asso. be insufficient to satisfy the debt, then it (the co.) must be placed in liq.; and each shareholder will be called upon to contribute, if necessary, to the full amount of his shares, but not beyond.

Most ins. asso., where not protected by charter of incorp. or otherwise directly by the law, have devised means of limiting their liabilities, not only as among themselves, but also as against persons dealing with them, as pol.-holders, etc. The steps taken to this end will be fully explained and considered under *LIMITED LIABILITY*.

It is necessary also to bear in mind with respect to the rights of creditors this general principle, which may now be regarded as settled—that a contract by a co. to pay a person out of its funds does not give the creditor any *specific* charge or lien on those funds, nor any preference over other creditors; but it nevertheless entitles him to the assistance of a Court of Equity to obtain payment; and even before the time for payment arrives to prevent the funds from being misapplied. He cannot, however, prevent them from being applied in any way that is consistent with the regulations of the co. Where an ins. co. had issued pol. and made them payable out of its funds, a pol.-holder whose policy had not become payable was held entitled to an injunction to restrain the co. from amalg. with and transferring its funds to another co., *such amalg. and transfer not being warranted by the D. of Sett. of the first Co.* This decision was in the case of *Kearns v. Leaf*, arising out of the affairs of the *Argus* L. Office. [*ARGUS LIFE*.] In the case of *King v. Accumulative* L. Office, it was decided at Law that a pol.-holder could not maintain an action for damages under similar circumstances. [*ACCUMULATIVE LIFE*.]

Thus it is seen that the remedies of the creditor (subject to certain general principles) vary in their scope with the varying constitutions of ins. asso.; and in their details of course with the varying conditions of such contracts. [*LEGISLATION, ETC.*] [*LIMITED LIABILITY*.]

CREEK.—A shore or bank on which the water beats, running in a small channel from any part of the sea. It is also applied to any part of a large river which is resorted to as a harbour or landing-place by small craft. In the U.S. the word signifies a brook.

CREEPING SICKNESS (*Kriebelkrankheit*).—The name by which the gangrenous form of ergotism is known in Germany.

CREMATION.—A word particularly used by classical writers to designate the ancient practice of burying the dead.

CRESCENT FIRE.—This Co. was projected in 1853; but it was doomed to sustain a cross from which it never recovered. Its promoters deserted it, and promoted in its stead the *Dreadnought*.

CRETINISM.—Imperfect development of the brain with mental imbecility, usually conjoined with bronchocele, observed in the valleys of Switzerland and on the Alps. The term is supposed to be derived from *cretina*, a miserable creature; and the various local names by which the condition is designated all convey the same meaning. [*GOITRE*.]

In a paper by Col. Sykes, F.R.S., read before the Brit. Asso. Meeting at Liverpool, 1854, the following details regarding "Cretins" are given:

Having observed several swelled throats and some real goitres at Nice, I looked over the Gov. returns, and found that a good deal of Cretinism existed in Piedmont and Savoy. In Dec. 1845, in a pop. of 2,558,349 souls, there were 18,462 people with simple goitres. Cretins, without goitre, 2080; with goitre, 3909; and not stated, 962—total, 6960. Of these 2185 had mere animal instincts; 3531 with very small intellectual faculties; 196 almost without any; and 1048 not specified. Of this number of poor creatures, 2483 were born from healthy (sane) fathers, and 2285 from healthy mothers; 961 from goitre fathers, 1267 from goitre mothers; 49 from cretin fathers, 41 from cretin mothers; 106 from goitred cretin fathers, 66 from goitred cretin mothers; and 438 fathers and 405 mothers not specified. The per-centage of cretins to the whole pop. was 0.27, running as high, however, as 2.78 in Aosa (78,110 inhabitants) and 2.26 in Moriana, in Savoy (62,344 inhabitants). Although I saw some goitres in Nice, and several cases of swelled throats, I did not see a cretin; and the return gives for the province only 11 cretins, 0.009 p.c. of the pop., 112,428.

CRETINISM, DEATHS FROM [E. AND W.] (Class, *ZYMOTIC*; Order, *Dietic*).—This disease, which causes so much misery in Switzerland and Northern Italy, is not unknown in England. In 1866 3 deaths were regis. as arising from it—1 male, 2 females. The male died between 45 and 55; 1 female between 45 and 55, and 1 between 75 and 85. In 1867 1 death only was regis., a male, who died between 10 and 15.

CREW.—This term comprehends every officer and man on board ship, engaged in the navigation or other purposes of the ship.

In the case of *Shore v. Bentall*, 1828, it was *held*, that the underwriters are responsible for loss consequent upon the misconduct or negligence of the captain and crew; but the owner, as a condition precedent, is bound to provide a crew of competent skill. In the case of *Clifford v. Hunter*, 1827, it was *held*, that the underwriters were not liable (under a pol. on the ship), where the crew was insufficient, in not having a person on board able to take the captain's place on his being dangerously ill, and the ship in consequence being obliged to deviate from her course to find a person to direct her. In *Annen v. Woodman*, 1810, it was *held*, that as a full complement of men is not necessary in harbour, a ship does not cease to be seaworthy for want of a crew, till she sails on the voyage without a crew. So in *Busk v. Royal Exchange Assu. Corp.*, 1818, where the insured has once provided a sufficient crew, the negligent absence of all the crew at the time of the loss is no breach of the implied warranty that the ship should be properly manned.

[SEAWORTHINESS.]

CRICHTON, ARCHIBALD, was for some years Man. of *Dundee Sea Marine*.

CRIMEAN WAR.—In the Crimean War, 1854-6, the proportion of officers killed, in relation to the entire casualties, was far greater than in any former experience. [WARFARE, RISKS OF.]

CRIMEN INCENDII.—The offence of arson.

CRIMINALS, PUNISHMENT OF: Effect on duration of Life. See PRISONS.

CRISIS (from the Greek, *to decide*).—Literally a decision or judgment. An event or period which marks changes or terminations in disease.

CRITICAL (from the Greek, *to decide*).—A term applied to symptoms or *periods* especially connected with the changes in a disease; and to certain *days* upon which febrile disorders are prone to take a favourable turn. Hence the term CRITICAL DAYS.

CRITICAL DAYS.—See preceding definition. The doctrine of Critical Days, as laid down by the father of physic, and maintained by Sydenham, and Cullen, and others of the highest authority, has been treated lightly by some modern physicians, and regarded too much as a venerable but unfounded prejudice. All, however, who have had opportunities of close and protracted attention at the bedside of fever, must have been impressed more or less with the truth of the ancient doctrine, and founded their prognosis more or less upon its principles. Cullen has remarked of the 163 instances of the termination of fever as recorded by Hippocrates, that more than two-thirds of the number happened on the critical days; that of the terminations which were *salutary*, not a tenth part happened on the non-critical days; and that of the terminations which were *fatal*, though the greater part happened on the critical days, yet above a third of them happened on the non-critical. —*Dr. Begbie*, Mort. of *Scottish Widows' Fund*, 1853.

CROCKER, JAMES SYDNEY, was Sec. of *British Empire* (No. 1) in 1842; in 1850 he became Act. and Sec. of *New Equitable*; in 1853 he projected the *Beacon L.* and F., and became its Act. and Sec.

CROMBIE, JOHN, was Act. and Sec. of *Aberdeen Mut. and Friendly* from 1857 to 1868.

CROSS, HENRY THOMAS, was trained to ins. bus. in the *Law F.*, which office he entered in 1845; from there he went to the *Promoter* about 1859, and remained until 1862; he then went to the *Westminster General*. In 1864 he became Chief Clerk of the *Western Fire and Marine*; after that he became Sec. in Lond. of the *Etna Fire* of Dublin; and then Sec. of fire department of *Manchester and Lond.* in London.

CROSS, ROBERT H., Sec. of *Southern and Western Counties* (Plymouth) from its formation in 1871.

CROSTON, J., Joint Sec. of *Brit. Imperial* and Joint Man. of *Brit. National* since 1871.

CROUP.—The *Cynanche Trachealis* of Cullen; a specific inflammation of the air-tubes, named from the *crouping* noise attending it.

CROUP, DEATHS FROM (Order, ZYMOTIC; Class, Miasmatic).—The deaths from this cause in England show some fluctuations. For 10 consecutive years they were as follows:—1858, 6220; 1859, 5636; 1860, 4380; 1861, 4397; 1862, 5667; 1863, 6957; 1864, 6777; 1865, 5921; 1866, 5168; 1867, 4387; giving a variation from 323 p. million of pop. living in 1858, down to 221 in 1861, then to 342 in 1863; and in 1867 207 p. million; or over an average of 15 years ending 1864, 207 p. million.

The deaths in 1867 were: males, 2343; females, 2044. Nearly all the deaths occurred under 5 years; and none after age 10-15.

CROWN, THE.—The rights of the Crown crop up at various points in connexion with marine ins. These will be considered under their proper heads, as DETENTION OF PRINCES; PRIZES; SALVAGE.

CROWN LIFE ASSU. CO.—Founded in Lond. in 1825, with an authorized capital of £1,500,000, in 30,000 shares of £50; £5 paid up. The reason of the large cap. was that it had been orig. intended to undertake F. bus. This design was abandoned before the D. of Sett. was prepared. Only about one-fifth of the cap. was orig. issued.

The orig. prosp. said:

The distinguishing feature of this inst. is the extension of the advantages of the system of L. assu. to a class of individuals who are at present altogether excluded from them, except at prems. quite disproportionate to the actual risk. . . .

It is well known that the officers in His Majesty's Army, Navy, and Royal Marines, and in the military and maritime service of the Hon. the East India Co., are altogether deprived of the benefit of L. assu. during periods of actual service, except at exorbitant premiums; and that under any circumstances differing from the ordin. risks they experience considerable difficulty in effecting ins.

The officers employed in the merchant service—a very numerous and respectable class of men—labour under similar disadvantages.

With a view to remove these obstacles, considerable pains have been taken to collect the requisite data for calculating a scale of premiums proportionate to the add. risks arising from actual service, and from sea and climate; and it is satisfactory to state that the lives of gentlemen engaged in the professions before mentioned may be ins. at moderate and corresponding rates.

The present Co. has therefore been estab., having for its objects the ordin. bus. of L. ins.; the ins. of the lives of officers in His Majesty's Army, Navy, and Royal Marines (both at home and upon actual service), and in the military and maritime service of the Hon. the East India Co., and in the merchant service of the U.K.; and the ins. of the lives of individuals intending to reside abroad either permanently or for shorter periods, and of persons proceeding upon single voyages in any quarter of the globe, or remaining at sea, at premiums proportionate to the actual risk, and calculated upon unquestionable and ascertained data.

A reserve of shares was made for the officers in the services named, and for the out-ports of Gt. Brit. It does not, however, appear that these special branches of bus. were ever much cultivated by the Co. The orig. prosp. further said:

Experience having shown the policy of compelling shareholders to effect ins., shareholders in this Co. will be required to ins. or procure and keep on foot ins. to the amount of one-half of their shares, to purchase or sell an annu. the consideration for which shall be equal to that amount, or to pay an ann. fine of 2s. 6d. p. share upon such moiety. For the ordin. risks of L. assu. an entirely new set of T. has been formed for this Co., in calculating which great pains have been taken to apportion the rates to the risk incurred at the several ages, and the scale now presented to the public will be found on inspection to afford liberal terms to the assured.

The D. of Sett. of the Co. was dated 21st June, 1825. It recites the orig. prosp., and proceeds to say: "It is hereby declared to be a fundamental principle of the said So. that the present and future proprietors thereof shall not assume or pretend to be or to act as a corp. body, unless they should be hereafter legally incorp." The proprietors then agree among themselves (*inter alia*) that no proprietor should hold at any one time more than 200 shares in the cap. of the Co. There were to be at first 17, afterwards 15, directors; 3 auditors; an act. [RAINBOW, J. M.]; a sec. [CONYERS, T. G.]; a sol.; a physician, etc. These officers were to give security. The directors might appoint agents. Ann. gen. court or meeting to be held 15th May each year. Regulations might be altered by a vote of three-fourths of directors and three-fourths of proprietors present at an extraordinary gen. court convened for that purpose, except the fundamental regulations. Directors might make by-laws and conduct the bus. of the Co. in all its details. Then:

77. That whenever a sudden increase of deaths shall happen in consequence of the plague, or any contagious or epidemic disorder, or of famine, invasion, or civil war, it shall be lawful for the board of directors, with the approbation of an extraordinary gen. court to be called by them for that purpose, to defer the payment of the whole or any part of the sum to be claimed under each pol. issued by the Co. for assuring any life which shall expire during the prevalence of such plague, contagious or epidemic disorder, famine, invasion, or civil war, until such time as an adequate supply for the payment thereof can be obtained out of the funds of the Co.

Such deferred payments to bear int. Funds to be invested in certain securities named in the Deed. A house might be purchased in which to conduct the bus. of the Co. A proprietors' guarantee fund and an assu. fund to be estab. Two-thirds of profits to be reserved for pol.-holders. No proprietor to be allowed to sell or trans. his shares without the consent of at least 3 directors at a weekly board. Any director, trustee, or auditor might be suspended on a vote of three-fourths of the directors present at an extraordinary board called for that purpose. Directors and officers to be indemnified. Co. might be dissolved, and its pol. engagements trans. to another office in certain events therein specified. No Act of Parl. for the incorp. of the So. to be accepted if the liability of proprietors was in any way increased.

There are three "fundamental clauses" in the Deed, to which reference is made hereafter, and we therefore give them entire:

3. Each proprietor shall be liable only to the extent of the sum of £50 for each share held by him or her, and not to any greater or further extent, either to the So. or the assured, and this shall be a fundamental principle of the So., and shall not be altered or affected by any future rule or regulation.

93. That the board of direction shall upon the 15th day of May, 1832, make up a report of the clear profits and accumulations made by or arising from the proprietors' guar. fund, deducting all expenses chargeable thereon up to the said period, and the proportion of such profits and accumulations due to the proprietors shall be placed to the credit of the proprietors in proportion to the shares held by them; and such profit and accumulations shall form a part of the permanent cap. of the Co., until such cap. shall amount to the sum of £1,500,000.

94. That such cap. of £1,500,000 shall never afterwards be diminished, and that this and the preceding provision shall be deemed fundamental laws of the Co.

The Deed consisted of 138 clauses, and was evidently compiled from several distinct sources: the asso. being sometimes called a "So.," then a "Co.," and there being various regulations which were more or less incompatible with each other. At an extraordinary gen. court held 20th Jan. 1854, certain considerable alterations were made therein; at another held 27th Aug. 1858, others were made. Still the difficulties were not entirely overcome. Finally, at an extraordinary gen. court, held 19th April, 1872, it was—

Resolved, by the votes of the qualified proprietors present at such court, that all the orig. and

supplemental laws and regulations of the Co., save and except the sections numbered 3, 93, and 94 of the orig. D. of Sett. of the Co., which are fundamental laws and regulations of the Co., be, from and after the day on which Reg. of Joint-Stock Cos. shall certify that the Co. is incorp., repealed; and that as from the date of such certificate, the following sections numbered 1 to 84, both inclusive, headed "The laws and regulations of the *Crown L. Assu. Co.*," together with the said fundamental laws and regulations comprised in the Schedule thereto, be the new laws and regulations of the Co., in exclusion of the laws and regulations so repealed; and that the Co. shall, on a day subsequent to the 19th day of April, 1872, be regis. as an unlimited co. under the Cos. Act, 1862, and the Cos. Act, 1867.

These new regulations (which only came into force on 27th Dec. 1872) certainly form a marked contrast to the orig. ones. They are models of clearness and conciseness combined. We give an example:

30. A special board may from time to time acquire, on such terms and conditions as they think fit, all or any part of the bus. of any other L. assu. co. or so.

35. There shall be inserted in every pol. a proviso that no proprietor nor any director, though he may have attested the execution of the pol., shall be directly or indirectly liable in respect thereof beyond the amount of the unpaid part of his shares.

The Co. is regis. with "unlimited liability." A return accompanying the regis. gives the names, etc., of 140 shareholders holding among them 5631 shares, representing a subs. cap. of £281,550.

The Co., commencing under the auspices of a powerful board, succeeded in its earlier years in obtaining a considerable amount of bus. The influence of personal connexion, like the influence of selection, passes away with time; becomes in fact exhausted. We fancy a chart of the ann. new bus. of the Co. year by year would present results something like the following: commencement £400,000 sums ins.; gradually dwindling down until in 1852 it was only about £80,000. In 1853 a change came over the scene: the new bus. rapidly ascends, until in 1867 we find it to be over £500,000.

The change which occurred in 1853 was simply a change of management. In that year the present Sec. and Act. (Mr. B. Hall Todd) was placed at the helm. He brought with him the enterprise and training acquired by some years of experience in a leading Scotch L. office. Down to 25th March, 1860, two-thirds only of the profits were apportioned to the pol.-holders septennially. Since that period they are entitled to *five-sixths* quinquennially. The proprietors' proportion of the profits goes to augment the sum credited on his shares, and will be so applied until the entire amount of £50 is credited as paid up. The proprietors' fund is separately invested, and from it alone the dividends paid to shareholders are derived. The amount of proprietors' fund, March, 1871, was £210,980.

In 1867 the Co. took over the bus. of the *Scottish Friendly*, which we believe was very small.

The general features of the Co. are liberal, surrender values are given after 2 ann. premis. on parti. pol., and after 3 on non-parti. pol. on life of another, and assigned pol. are exempt from forfeiture. Pol. may be exchanged by substitution of lives. One-third and one-half credit pol. granted.

This Co. was one of the earliest to regis. its detailed accounts in conformity with the provisions of the Life Assu. Cos. Act, 1870. There was indeed some question raised as to whether some of the items were rendered in the manner intended by that Act. A sharp controversy ensued thereon in the cols. of the *Ins. Record*; but the returns were accepted by the Board of Trade, and pub. in the first vol. of the returns laid before Parl. From these we gather the following interesting details, in add. to those furnished in the T. given at the end of this art.

Total amount of funds on 25th March, 1871, £1,175,334; prem. income £121,389; int. and dividends £50,835. Claims of the year £82,956. No separate annuity fund is kept, but the value of annu. at date named was £16,035. Among the investments, the principal item is "Mortgages on property within the U.K. £481,972." "Railway and other Debentures, and Debenture Stocks, £467,773." "In Brit. Gov. Securities, £46,000."

From the statement respecting the valuation made from 25th March, 1870, we take the following passages:

2. The principles upon which the valuation and distribution of profits among the pol.-holders are made are determined by the 99th clause of the Co.'s D. of Sett., which directs "that the several calculations shall be made by the Actuary of the So. for the time being, or by some other person or persons to be approved of by the directors for the time being, at such rates of int., and upon such prob. of the duration of human life, and upon such mathematical principles for determining the respective contributions of the assured to the disposable funds of the Co., as the directors shall from time to time think proper." And the same 99th clause further directs that "the disposable profits of the Co. shall be assigned or allotted to them (the assured on the participating scale), in shares directly proportioned to their respective contributions to the disposable funds of the Co."

3. The T. of mort. used in the valuation is the *Equitable Experience T.* (Davies).

4. The rates of int. assumed in the calculations are, 3½ p.c. for pol. with and without profits, 4 p.c. for annu. transactions, and 4 p.c. for rev. bonus add.

5. No uniform proportion of the ann. prem. income is reserved as a provision for future expenses and profits, but the whole "loading" added to the pure or risk prem. is reserved.

6. Pals. share at the first division after they are effected, but the bonus vests only if and when 3 years' premis. have been paid.

The "extra premis." received during the year to 25th March, 1870, amounted to £898, and were "for naval and military service at foreign stations, mercantile marine service,

voyages, and residence in foreign countries beyond the limits of Europe. These extra prems. are for risks generally of short duration, and have always been excluded from the valuation."

Then we are told that the average rate of int. on the *investments* of the life assu. fund of the Co. was on 25th March, 1866, £4 9s. 6d.; 1867, £4 10s. 7d.; 1868, £4 11s. 2d.; 1869, £4 12s.; and 1870, £4 12s. 3d. p.c. At the respective dates mentioned portions of the fund were not invested; "and if it be intended by the legislature that the rate is to be calculated on the *gross* fund, including agents' balances, outstanding prems. and int., and int. accrued, etc., then the int. on the *invested* portion of the fund was equal to the following rates on such gross fund, namely:—1866, £4 6s. 10d.; 1867, £4 5s. 5d.; 1868, £4 2s.; 1869, £4 6s. 5d.; and 1870, £4 7s. 5d."

The following T. will show the position of the Co. at each of its five septennial and two quinquennial investigations:

Year.	New pol. issued.	Insuring.	New Prems.	Total Income.	Total Pol. in force.	Total Insurances in force.	Life Ins. Fund.	Surplus distributed.	Total Claims Paid.
		£	£	£		£	£	£	£
1832	173	114,379	3558	36,080	1201	990,698	84,802	21,723	58,098
1839	226	147,023	4875	59,250	1951	1,485,390	243,180	67,597	184,836
1846	186	104,357	3626	77,740	2585	1,797,960	411,959	83,937	411,412
1853	169	85,075	3100	88,440	2928	1,928,571	562,976	89,686	693,524
1860	499	231,614	7808	114,520	4304	2,539,055	713,681	108,613	1,182,000
1865	507	255,875	8382	131,945	5338	3,006,242	825,459	79,861	1,550,000
1870	828	426,620	13294	166,475	7651	4,188,841	914,209	82,576	2,063,000

The *Proprietors'* capital, interest, etc., are excluded from the above figures; *Bonus* not included in "Total Ins. in force."

It seems almost superfluous to say, after the preceding details, that the Co. is under sound and excellent management. This is one of the few English offices that have succeeded in transacting a profitable life bus. in Ireland. Those who know the gen. agent, Mr. Joseph Manly, will understand the reason of this Co.'s success there. Then in England considerable success has attended the efforts of the agency superintendents—Mr. A. J. Corbett and Mr. Hewlings. With such a captain, and such a team, the continued success of the Co. is certain.

CRUCIFIXION.—A mode of execution common among the Syrians, Egyptians, Persians, Carthaginians, Greeks, and Romans, usually accompanied by other tortures. Crucifixion was ordered to be discontinued by Constantine, A.D. 330. [VIOLENT DEATHS.]

CRUISE [or CRUIZE].—A voyage in quest of an enemy expected to sail through any particular tract of the sea at a certain season—the seeker traversing the cruising latitude under easy sail backward and forward. The parts of seas frequented by whales are called the "cruising grounds" of whalers.—*Smyth*.

CRUISER.—Cruisers are small men-of-war ships, appointed by the Admiralty to cruise in certain latitudes in order to protect merchant ships of their own nation, as well as to meet with and apprehend or destroy the enemy. They are generally of small size, but such as sail well, and are well manned. They must by no means leave their stations during the time limited, except forced thereto by some damage received or by stress of weather. The statute 6 Anne c. 13, and several later statutes, provide for Cruisers.

CRUISING.—Several important cases affecting points in marine ins. have come before the Courts regarding cruising. Thus, in the case of *Lawrence v. Sydebotham*, 1805, it was held, that a pol. on a ship on a certain commercial voyage "with or without letters of marque," giving leave to the insured to chase, capture, and man prizes, however it may warrant him in weighing anchor while waiting at a place in the course of the commercial voyage insured, for the purpose of chasing an enemy who had before anchored at the same place in sight of him and was then endeavouring to escape, will not warrant him after the capture, and in the course of the further prosecution of the voyage, in lying to, in order to let the prize keep up with him, for the purpose of protecting her as a convoy into port there to have her condemned: though such port was within the voyage ins. So in *Jarratt v. Ward*, 1808, leave granted in a pol. on a fishing voyage to see prizes into port does not authorize the ship to remain in port till a prize receives necessary repairs, which she could not otherwise have had; and at most extends to seeing the prize moored safely, and giving the necessary orders for her final destination. Again, in *Hibbert v. Halliday*, 1810, liberty given in a pol. on a fishing voyage, "to chase, capture, and man prizes," does not authorize the ship to lie by 9 days off a port, waiting for an enemy's ship to come out when she should have completed her cargo—although she lay in wait during that time within the limits of her fishing ground. Further, in *Syeres v. Bridge*, 1780, a liberty to "cruise six weeks" in a pol. means "six weeks successively from the commencement of the cruise." [DEVIATION.] [PRIZES.] [SAILING.]

CRUSADERS, LAW OF THE.—See CYPRUS.

CRUSADES, THE.—That the Crusades exercised a very important influence upon com-

merce and maritime discovery has been admitted by most historical writers. That they had an influence upon marine ins. Mr. Hendriks has already testified. They prob. led directly up to CASUALTY INS.; and they must have had a most baneful influence on the progress of the pop. of Europe for several centuries.

The wars thus named were undertaken by the Christian powers, at the instance of the Papal hierarchy, to drive the infidels from Jerusalem and the Holy Land. Peter the Hermit raised the cry towards the end of the 11th century, when—

All in a moment through the gloom were seen
Ten thousand banners rise into the air
With orient colours waving: with them rose
A forest huge of spears; and thronging helms
Appear'd, and serried shields in thick array
Of depth immeasurable.—*Paradise Lost*.

The following are the leading incidents of each Crusade so far as relates to our present purpose :

1095.—First Crusade organized, consisting of upwards of 300,000 persons—Gibbon thinks nearer *half a million*—and took possession of Jerusalem, 1099. A very large proportion of this number either perished on the way or were slain before the walls.

1146.—Second Crusade, preached by St. Bernard, consisting of 200,000 men, headed by the Emperor Conrad II. and Louis VII. of France. The Crusaders were defeated, and a large proportion perished.

1188.—Third Crusade, in which Philip II. of France and Richard I. of England took part. Army very large; precise numbers not stated. Result glorious, but fruitless.

1195.—Fourth Crusade, led by the Emperor Henry VI. Ended disastrously. Numbers not stated.

1198.—Fifth Crusade, proclaimed by Innocent III., led by Baldwin Count of Flanders. Constantinople was taken, and great numbers of the Crusaders perished.

1216.—Sixth Crusade, led by the Emperor Frederick II., and again obtained possession of Jerusalem.

1248.—Seventh Crusade, led by Louis IX. (St. Louis), who was defeated, and afterwards released by ransom.

1270.—Eighth and last, led by the last-named Prince, who died at Carthage of a pestilence. Prince Edward, afterwards Edward I. of England, took part in this Crusade, in which great efforts were made to retrieve former misfortunes. In the end (1291) the Christians were driven out of Syria.

It is estimated that nearly *two millions* of Europeans lost their lives in these struggles; many of whom were of the very flower and chivalry of the nations. In England the ranks of the famous order of the Knights Templars were fearfully thinned, and their treasure dissipated. [CASUALTY INS.] [CYPRUS, MARITIME CODE OF.] [MARINE INS., HIST. OF.]

CRUTCHLEY'S INSURANCE.—In the period of the South Sea mania, 1710–20, there was a project called "*Crutchley's Ins. from loss by Garraway's Fishery*." It appears to have been located at Jonathan's Coffee House, but no further particulars concerning it can be obtained.

CUBITT, RIGHT HON. WILLIAM.—He gave evidence before the Select Parl. Committee on Fires in the Metropolis in 1862, while he filled the office of Lord Mayor, of which the following is a brief outline: He was ashamed to say he was not aware whether the Corp. of Lond. did ins. its property or not. [It was resolved in 1793 not to ins. it. FIRE INS., HIST. OF.] "I am of opinion that there ought to be a fire extinguishing force at least four times as large as that which now exists; that it ought to be altogether an independent body; that it should be commanded by a person who in time of need should have power as despotic as that of the colonel of a regiment, or the captain of a line-of-battle ship; that he should be subject to no sort of control; that he should have the assistance of the police." "I do not imagine that the public has any claim on the F. Brigade, or that any person has any claim upon a F. ins. office to do more than to make good any loss upon property if insured. It is a commercial transaction between the F. cos. and the person who ins. his house." "I think it very desirable that every F. office should have a considerable amount of influence in the management of the F. extinguishing brigade." "I am not a F. office director." "I think it is a hardship on the water cos. that they should be compelled to supply water for nothing." "It has always seemed to me that the reward was given, not so much for putting out the fires, as to induce people to keep their chimneys swept." "£6000 or £7000 a year [the cost of parish engines] is but a very small sum in this vast metropolis, where the rental is £12,000,000 or £13,000,000." "The late Mr. Braidwood had, by popular consent, unlimited authority to do what he thought fit."

CUDLIP, JAMES STEVENS, Act. and Sec., and we believe founder, of *Western Counties and London L.*, 1861.

CUJACIUS, M.—A learned writer on maritime law, frequently quoted by continental writers on marine ins.

CULAGIUM.—The laying-up of a ship in a dock for repair.

CULLENDEEN, HENRY, was Act. of *Scottish L.* and Guar.

CULPEPPER, SIR THOMAS.—He (as also his learned son, Sir Thomas Culpepper the younger) wrote upon Usury in the 17th century; and under that head [USURY] each of their works will be noticed.

CUMBERLAND MARINE INS. CO.—This Co. was projected in 1846, but never got beyond prov. regis.

CUMMING, GEORGE, was Sec. of *Sovereign L.* from its commencement down to about 1848. In 1853 he became Man. of *Kent Mut. L.* and of the *Kent Mut. F.*, and remained in that position down to 1856.

CUNNINGHAM, A. R., late of the *Alliance M.*; died 1872, aged 77.

CUNNINGHAM, PETER, for many years Chief Clerk in the *Amicable*. He died Jan., 1870, aged 70.

CUNNINGHAM, TIMOTHY, pub. in Lond. in 1759: *Law of Bills of Exchange, Promissory Notes, Bank Notes, and Insurances; containing all the Statute Cases at large, etc. Methodically digested, with Examples for computing Exchange, etc.* Several later eds. appeared. The book is really only a collection of cases, with extracts from Malynes, Molloy, and several other writers, without method; and contains but little reason and obs. 6th ed. 1778.

CUNNINGHAME, W., pub. in 1809: *Mercantile Calculation, consisting of Tables shewing premis. of [Marine] Ins., covered at all rates, by pounds or guineas, from one-eighth to fifty-one guineas p.c. Premis. of assu. payable at the same rates, both by pounds or guineas. Simple profit covered with discount, the cash price covered with discount, profit on the return, profit on the return covered with discount, profit on the whole charge covered with discount, and the change of discount from one to any other, still retaining the orig. cash price; each separate profit possessing the copious variety of the ins. T. Profit in its most simple state. Profit and Loss T., accurately ascertaining what profit p.c. any advance in price produces, or the consequent loss p.c. attending the fall. Limit price, and manner of obtaining a certain fixed profit thereon. T. of Int., specifying the reduction of profit by credit, from 1 to 12 months; with English money exchanged into Irish at all rates; also common profit, discount, commission, and brokerage. The work was pub. at £3 3s.; each copy had the signature of the author.*

CURATOR.—A guardian; one having legal charge of the estate of an orphan minor by appointment of Court. From the nature of the trust he may ins. the real property of his ward.—*Griswold*.

CURFEW BELL (from the French *couvre feu*, i.e. cover fire).—This was a Norman institution, introduced into England in the reign of William the Conqueror, A.D. 1068. On the ringing of the Curfew at 8 o'clock in the evening, all fires and candles were to be extinguished, under a severe penalty.—*Rapin*.

It is stated by other writers that Alfred the Great, who introduced building with brick and stone, and restored learning at the University of Oxford, ordered the inhabitants of the last-named city to cover up their fires every night at the ringing of Curfew. This was nearly two centuries before William the Conqueror.

It is admitted that William either introduced or extended the custom of the Curfew Bell generally throughout England, with the custom of extinguishing lights and fires.

Under Henry I., A.D. 1100, the Curfew was abolished as a national institution; but a bell is even now rung at 8 o'clock in the evening in many towns.

In the reign of Richard I., A.D. 1189, it was one of the rules of the Wardmotes in the City of Lond., arranged with a view to the prevention of loss of life and destruction of property by fire, that "of persons wandering by night, it is forbidden that any be so daring as to be about the streets of the City after Curfew rung at St. Martin's-le-Grand and St. Lawrence, on pain of being arrested"!

I hear the far-off curfew sound
Over some wide water'd shore,
Swinging slow, with sullen sound.—*Milton*.

CURIOSITIES OF INS.—See INS. CURIOSITIES.

CURNIN, MR., of the Calcutta Mint, constructed in 1846 *A Table of the Mort. of the Civil Servants who had come upon the Bengal Estab. since 1779*. He was about the same time engaged in forming a T. applicable to military officers, when death put an end to his labours. [INDIA, MORT. OBS. ON LIFE IN.]

CURRIE, DR., prepared about the year 1800 a paper: *Facts and Calculations respecting the Pop. and Territory of the U.S. of America*. [U.S., VIT. STATIS. OF.]

CURRIE, G. E., editor of *The United States Ins. Gazette, and Mag. of Useful Knowledge*. New Series, commenced in 1855, issued in monthly numbers of 48 pages, and forming an ann. vol. of over 600 pages 8vo., including advertisements. We have the work down to 1867, since which date we have not seen it.

He is also ed. of *United States Ins. Almanack*, commenced in 1856.

In 1852 he pub. *Ins. Agent's Assistant: Popular Essay on L. Assu.* A very useful and well-written little book.

CURTAINS.—The fires in Lond. during 33 years traced directly to the firing of Curtains were 2822, or nearly 10 p.c. of all the fires the causes of which were ascertained.

CURTATE (Lat. *curto, curtatus*, to shorten).—A life annuity is said to be Curtate when it terminates with the last payment before death, and is not continued up to date of death.

CURTATE EXPECTATION.—The “Expectation” up to the beginning of the year in which one or both of two joint lives fail. The expression was used by Milne; and is also employed by Dr. Farr in 6th R. of Reg.-Gen., p. 580.

CURTIS, FRANK ALLAN, F.I.A., Act. and Sec. of *Gresham L.* since 1864. Mr. Curtis was in 1840 Sec. of H. B. M. Consul at Paris, but desiring to follow the actuarial profession, he came to Lond., and in 1848 was appointed to a clerkship in the *English and Scottish Law L.* In 1850 he was appointed Chief Clerk in Lond. office of *Scottish Amicable*. In 1853 he was appointed Man. of the *Mentor*; and on that asso. passing over to the *Eagle* in 1856, Mr. Curtis became one of the leading officials in the latter Co., and had the advantage of completing his studies as an Act. under Mr. Jellicoe. In 1864, as we have said, he was appointed to his present position. In 1857 he received the honour of knighthood from the King of Italy, and is a knight of the order of St. Maurice and Lazare.

In 1858 Mr. Curtis addressed a letter to the ed. of *Assu. Mag.* [vol. viii. p. 54]: *On the Best Method of Constructing an Index* [of Lives], in which some very useful and practical suggestions are made.

In 1869 Mr. Curtis devised and submitted to the Notation Committee of the Inst. of Act. a scheme of *Graphic Notation*, applicable to the computation of L. contin., of which the President of the Inst. spoke in terms of commendation. [GRAPHIC NOTATION.]

Under Mr. Curtis's guidance the *Gresham L.* has assumed very colossal proportions.

CURTIS, JOSIAH, M.D., read before the Statistical So. of Lond. in 1853 a paper: *On the System of Regis. in the U.S. of America.* [U.S., VIT. STATIS. OF.]

CURTIS, PHILIP, was Sec. and Act. of *General Annu. and Endow. So.* from 1853 to 1864.

CUSTOM.—The unwritten law—*Lex non scripta*—estab. by long usage and consent. It is thus distinguished from the written law—*Lex scripta*. Custom is held to be a rule of law when it dates back to A.D. 1198. 60 years' custom is binding in the Civil Law; and 40 years in Ecclesiastical cases.

Another definition of Custom is, “An unwritten law estab. by long usage and the consent of our ancestors.” If custom be universal, it is “common law”; if particular, it is then properly “custom.” The requisites to make a particular custom good are these: (1) it must have been used so long that the memory of man runs not to the contrary; (2) it must have been continued, and (3) peaceable; also (4) reasonable, and (5) certain; (6) compulsory, and not left to the option of every person, whether he will use it or not; and (7) consistent with other customs, for one custom cannot be set up in opposition to another. Customs are of different kinds: as customs of merchants, customs of a certain country or district, customs of Lloyds, etc., etc.

The learned Shuback, Keeper of the Archives of Hamburg, in a treatise pub. there, 1751, entitled *De Jure Littoris*, with great judgment, shows that the plea of Custom, where the custom is bad, ought to be of no weight in the decision of controversies; and quotes a case as old as the year 1445, wherein the magistracy of Hamburg had been chosen arbitrators between the Duke of Mecklenburg and the city of Lubeck, to decide a dispute about salvage: and upon the Duke's insisting strenuously on the right of Custom, his plea was replied to, and finely explained by the said arbitrators, who would not allow that any custom could be of weight that was “inconsistent with equity.” Lord Kaimes has expressed the same view.

The custom of merchants is to be attended to in M. ins.; and when the practice and usage among them are *notorious*, there is no occasion for any further proof of their legality; also, with respect to those customs, the judges may inform themselves in court; and in maritime affairs may refer themselves to skilful and experienced seamen, according to the general maxim that we are always to consult and abide by the evidence of persons of knowledge and ability in their respective professions.—*Roccus*, 1655.

Our particular customs at home ought not to be made a reason for denying what is justly due to people abroad who give us their premis.: since the intent and meaning of those who pay a valuable consideration for ins. is, that the insurers shall stand in their place and stead—with this particular obligation however, that the insured shall omit nothing that may be for the interest of the insurer, whose right is properly to be set forth and defended.—*Magens*, 1755.

Questions of Custom very frequently come before underwriters in relation to ins. contracts; but the subject is too wide for us to do more than glance at the leading principles involved. In the case of *Edie v. East India Co.*, 1760, it was *held*, “the custom of merchants is the general estab. law, not any specific local custom.” “But it must be controlled by adjudged cases.” “The opinion of merchants is not the custom of merchants.” In *Camden v. Cowley*, 1762, Lord Mansfield laid it down, “that evidence of the general opinion of merchants is allowed to be given to prove the custom of merchants.” In *Yates v. Pym*, 1816, it was *held*:—“A usage of trade cannot be set up in contravention of an express contract.” And in *Noble v. Kennoway*, 1780, it was *held*, that to prove the manner of conducting a particular branch of trade at one place, evidence may be given to show the manner in which the same branch is carried on at another place. [USAGE.]

CUSTOM HOUSE.—The house where commodities are entered for importation or exporta-

tion; where the duties, bounties, or drawbacks, payable or receivable upon such importation or exportation, are paid or received; and where ships are cleared out, etc. There are Custom Houses in most of the larger seaport towns; but the principal Custom House is in Lond.

CUSTOM HOUSE BROKERS.—Persons authorized by the Commissioners of Customs to act for parties at their option in the entry or clearance of ships, and the transaction of bus. in connexion therewith.

CUSTOM HOUSE REGISTER.—The Regis. wherein the names, tonnage, names of owners, etc., of all Brit. ships are entered. This regis. constitutes a record of the titles to Brit. ships.

In the case of *Marsh v. Robinson*, 1802, it was held, that a person who makes ins. as the owner of the ship must stand so regis. at the Custom House at the time; and the production of the Regis. from the Custom House is conclusive evidence of ownership.

CUSTOM OF LLOYDS.—By the expression "Custom of Lloyds" is denoted the estab. usage adopted generally by the body of Brit. underwriters in conducting their ins.; as, for example, the practice of deducting one-third "new for old" from the cost of labour and materials expended in the repair of sea-damaged vessels.—*McArthur*.

CUSTOMS.—Duties charged upon commodities on their importation into, or exportation out of, a country. They seem to have been levied in England before the Conquest; but the King's claim to them was first estab. by 3 Edward I. (1275).

CUSTOMS ANNUITY AND BENEVOLENT FUND.—Founded in 1816, for granting annu. and pensions to the members of the service, their widows or nominees. The project originated with Mr. Charles Ogilvy, at that time a clerk in the long room at the Custom House; but it is recorded in the reports of the asso. that "it was worked out and brought to maturity entirely by the ability and influence of Mr. J. Deacon Hume, for many years from commencement of the inst. President of the Fund."

A preliminary meeting of the officers and clerks of the Customs was held on 25th April, 1816, Mr. Hume in the chair. The object and nature of the scheme were fully explained, and 7 officers of the Customs were appointed as a "Temporary Committee of Formation." This committee was to prepare a plan, and invite the co-operation of other public departments. Letters were accordingly addressed to the Secretaries of the Excise Office, of the Stamp Office, of the Post Office, and of the Tax Office; but no answers were received. The Board of Customs of Scotland was invited to join, but declined.

The Board of Customs having agreed to the project, the next step was to obtain the sanction of the Lords of the Treasury. A memorial addressed to them under date 24th May, 1816, says (*inter alia*):—"That the anxiety of your memorialists for a local inst. of this nature within their own department is chiefly felt in behalf of the interest and welfare of persons of small incomes who may need the prudence and decision necessary to induce them to ins. their lives with any of the public cos. already estab." After several conferences between their Lordships and the Committee, the required assent was obtained.

The next measure was the obtaining a special Act of Parl.—56 Geo. III. c. lxxiii. (1816)—*An Act for Estab. and Regulating a Fund for the Widows, Children, and Relatives of Officers or Persons belonging to the Department of Customs of England*. A Committee was to be elected for the formation and regulation of the Fund. Rules were to be constructed, which, after approval by Commissioners of Customs, and ratification by a Judge, were to have the same force as this Act. A poundage was to be assessed on the salaries of all officers of the Customs who should agree to join at the rate of 2d. in the £ for eight quarters, and 1d. in the £ thereafter, to be deducted at the time of payment of salaries. The annu. were not to be assignable or attachable, or otherwise disturbed, and in the event of the marriage of a female recipient the annu. still belonged to her. Persons leaving the service might still remain members, on continuing their contributions. Profits to be applied for benefit of Fund only. The benefits conferred by this Act are very great.

The question of the poundage on the salaries had met with some objection, and Mr. Hume furnishes us with the argument by which it was overcome:

The question propounded to the Lords of the Treasury was in substance this—Whether the fathers of those young men whom they might be pleased thereafter to appoint to situations in the Customs would be expected to hold those situations to be of less value to their sons, on account of so trifling a deduction from the salary as 1d. in the £, considering the use to which that 1d. was to be applied? Or would their Lordships hold their patronage to be less valuable by reason of such a deduction for such an application?

Their Lordships assented, apparently for the following reasons:

As most persons were appointed to public offices early in life, celibacy was not anticipated, nor were bachelors always without dependent relatives; and the very trifling deduction of 1d. in the £ from the salaries of such persons was not considered by the Lords of the Treasury to constitute a larger payment than the chance of having occasion to avail themselves of the Fund might be deemed to be worth.

It has since been officially asserted that if this poundage feature had not been granted, the project would not orig. have gone forward; while "the experience of the last 40 years has shown that more persons were induced to effect ins. on their lives from the payment of poundage than from any other cause." Finally:

To some it is a quarterly admonition that they have a duty to perform, which, if longer neglected,

might consign their family to want and penury. To others it leads to inquiry, and they find from actual facts and results presented to them from the records and experience of the office that the Fund opens to them a mode of securing a provision for their families best suited in all respects to their means. And all arrive at the important fact, that the contribution of poundage ultimately returns, increased in value, to the widows and families *alone* of the members of the Asso. Many who, having been in the service at the estab. of the Fund, and . . . declined to accede to the constitution of poundage, upon witnessing the projects and developments of the inst., have consented to pay a heavy settled entrance fee, in order to qualify themselves to become members.

In the following year, viz. 1817, the asso. acquired another and valuable source of income, viz. the profits from the CUSTOMS BILL OF ENTRY, of which we shall give a detailed account under that head. The income resulting in the early part of the present century averaged about £1000 p.a.; by 1834 it was said to have reached the large sum of £11,000. In 1855 it yielded only a little over £4000. This property was acquired by purchase. It was no doubt in view of this acquisition that Mr. Hume said in his report which accompanied the first code of rules: "It is by no means improbable that out of the multifarious concerns of so extensive a department as the Customs, some adventitious assistances may hereafter present themselves."

All subs. to the Fund cease on the superannuation of the member: so that the annu. which he is then to enjoy becomes a pure and simple benefit.

CUSTOMS BILL OF ENTRY.—This is a daily list of ships and their cargoes entered inwards, or entered outwards, for the port of Lond., or any of the principal ports of the U.K.—each of which now has a separate bill. This printed list gives in fact abstracts of the Bills of Entry lodged at the Custom House by owners and freighters of ships. The pub. is conducted by Custom House officials; and since 1817 the profits, in whole or in part, have been applied to the purposes of the *Customs Annu. and Benevolent Fund*, of which we have already given an account.

The hist. of this pub. is remarkable, and gives us an insight into the ways of our not very remote ancestors, at once instructive and amusing. It was originally pub. under the authority of a patent of ancient date. Before 1720 the patent was vested in Sir Andrew King; but in that year it passed into the family of the late Mr. Frankland Lewis, M.P. In 1811 it "suited his family arrangements to transfer it to his mother." It was then worth on an average about £1000 p.a. In 1817 the patent was sold to the *Customs Annu. and Benevolent Fund* for the sum of £28,000, "calculated upon the prob. of the patent being perpetually renewed." The man. of the Bill was placed under the control of Mr. Ogilvy, the then Man. of the *Customs Fund*, and he was awarded one-half the proceeds of the Bill for his trouble. Great changes and improvements were made, and the revenue derived increased very rapidly. The Select Parl. Com. on "Sinecure Offices within the U.K.," which made its Rep. on 24th July, 1834, took some evidence regarding this patent. The evidence taken by that Committee elicited (*inter alia*) the following facts:

The office of the Clerk of the Bills of Entry is in some points under the control of the Lords of the Treasury. It was especially required to be so placed by Mr. Pitt, on the renewal of the patent in 1789. Many times during the late war it was held to be injurious to commerce, particularly when Bonaparte's decrees and the Orders in Council were in force, that the ports from which, and to which, particular articles were imported and exported should be pub.; and directions were sent from the Treasury not to print the name of any port in possession of the French troops; the entries were therefore made in blank. The merchants of the city of Lond. knew enough of the real state of commerce to understand where the goods came from and whither they went; but as that was not so distinctly understood on the other side of the water, the ships were not condemned when they returned—say to the port of Hamburg, or the port of Flushing, or any port in the possession of the enemy—after an illegal voyage; although they would have been confiscated if it had been known when such a ship returned that she had loaded her cargo in Gt. Brit., instead of the foreign neutral port from which she had nominally and fictitiously cleared out. *On many occasions during the war directions were sent from the Treasury to omit altogether entries of the export of warlike stores.*

We have said the Bill was improved when it came under the management of the Directors of the Customs Fund. The following was given in evidence in 1834:

The first step taken by the Directors of the Fund to give confidence to the publication, was to disturb a practice which had prevailed in the different offices at the Custom House of taking a fee from any merchant who wished to have the publication of his entry suppressed, *which had been an every-day practice.* It ceased immediately and completely. . . . The clerks suppressed any entry for which the merchant paid half-a-crown. . . . What the merchant paid for was, that any particular entry in the Custom House books should be suppressed in the official Bill of Entry. *The new practice occasioned much emotion in the trade, there being many parties having different objects. There were as many merchants at first who wished for a continuance of the former practice as those who felt the increased value of the document, by reason of its discontinuance; but the desire for improving the document in the end prevailed.*

It was further said:

The increase of bus. at the port of Liverpool had taken the Bill of Entry by surprise; and occasionally the paper had been incapable of holding all the names of the ships of the day; but the principle of the pub. had rendered this of no serious importance to the trade, because the number of ships entered out and the number of ships clearing out every day was always given; consequently the number remaining on the books, as pub. in the bill of the preceding day, always enabled the broker or other interested person to see, by a retrospect of that bill, whether the ship of which he wanted information still remained on those books. No complaint respecting the omission had been made to any official quarter.

The Parl. Com. reported against the continuance of the patent; but in 1846 the Directors of the Customs Fund obtained a renewal of it—chiefly, we believe, on the ground of

its advantages to commerce, and the proceeds being applied to a purpose which tended to mitigate the public burdens.

It appears that the Bill has undergone other modifications. The Directors of the Customs Fund in their Report for 1856, say "they have especially kept the subs. price of the several printed Bills of Entry, as well as the charges for information in manuscript, at such rates as would, after paying reasonable charges of man., leave only a moderate surplus to be carried in aid of the Fund. The surplus of the whole of the ports of the U.K. for the year 1855 was only £4197 13s. 4d."

The "Trade List" is a distinct pub. from the Bill of Entry; although under the same management.

CUSTOMS LIFE ASSU. AND WIDOWS AND ORPHANS FUND.—This asso. was founded in Edin. some years since—we do not learn the precise date—among the lower branches of the Customs Service, for the purpose of giving a benefit on the death of any of its members. A quarterly subs. is paid, said to be much below the rate usually paid to friendly sos. The asso. is enrolled under the Friendly Sos. Act.

CUTBUSH, E., F.I.A., Act. of *Westminster and General L.*, which office he entered in 1836. In 1858 he became Assistant Act.; and 1870 he became Chief Act.

CUTCLIFFE, GEO., Act. and Sec. of the *Clerical, Medical, and General* since 1858. He was previously Assist. Act., and was trained up in the office, which he entered in 1841. We have already seen how the Co. continues to thrive under his prudent management.

CUTHBERTSON, FRANCIS, was Sec. of *Brit. Empire Fire* on its estab. in 1857; and on the trans. of the bus. of that co. to the *General*, he became the Fire Man. of that co. He retired from this position and from ins. pursuits in 1868. He commenced his ins. career as an insurance agent.

CUTS AND STABS, DEATHS FROM (Class, VIOLENT DEATHS; Orders, (1) *Accident or Negligence*; (2) *Homicide*; (3) *Suicide*).—The deaths regis. under this head in England range under three categories: (1) those from accident or negligence; (2) those inflicted with murderous intent; (3) the result of suicide. Of the first and the last we have specific statistics. The deaths of the first order in 10 consecutive years were as follows: 1858, 80; 1859, 75; 1860, 81; 1861, 41; 1862, 54; 1863, 82; 1864, 115; 1865, 93; 1866, 97; 1867, 103. Thus varying from 4 p. million of the pop. in 1858 to 2 in 1861, 6 in 1864, and 5 in 1867.

Those of the third order (Suicide) were in ten consecutive years as follows: 1858, 243; 1859, 270; 1860, 276; 1861, 257; 1862, 215; 1863, 257; 1864, 249; 1865, 252; 1866, 265; 1867, 268. Thus varying from 13 p. million of the pop. in 1858 to 11 in 1862, 12 in 1865, and 13 in 1867.

The ages at death of the first order are younger than those of the third order.

CUTTING, ALEXANDER, propounded about the close of the 17th century a very elaborate scheme of F. ins. and salvage combined: the expenses to be defrayed by the general rate upon house property within the B. of mort. [FIRE INS., HIST. OF.]

CUTTING AWAY.—When by the violence of the wind or sea, or any other accident, a mast is split, sails torn, ropes broke, or any other damage befalls the rigging, these are not chargeable to average; but if, for the avoiding a greater misfortune, it shall be necessary to cast such damaged mast, sails, ropes, and rigging overboard, or to cut the ropes to which they hung, or any other detriment be done to ship or goods; not only these, but the rigging which has been damaged and cast overboard, shall, according to their value after being thus damaged, be made good by average contribution. This in accordance with the Ordin. of *Konigsburg*, and some others; but it is clear that the cutting away must have been with no other object than the common preservation, to bring it within general average.—*Weskett*. In all such cases there is great room for fraud, and thorough investigation is necessary.

CYANOSIS (from the Greek, signifying *blue*).—*Morbus cæruleus*, blue disease—the *blue jaundice* of the ancients. A disease in which the complexion is tinged with venus blood, from malformation of the heart, which admits of the admixture in the system of the venus and the arterial blood. The term is synonymous with *Plethora venosa*.

CYANOSIS, DEATHS FROM (Class, DEVELOPMENTAL; Order, *Developmental Diseases of Children*).—The deaths from this cause in England show a tendency to increase. In 10 consecutive years they were as follows: 1858, 386; 1859, 403; 1860, 398; 1861, 420; 1862, 459; 1863, 456; 1864, 465; 1865, 483; 1866, 514; 1867, 481. Over a period of 15 years ending 1864 they had averaged 18 to each million of the pop. living. In the 5 years ending 1864 they were nearly 22 p. million.

The deaths in 1867 were: males 266, females 215. They are all in the early years; mostly the first.

CYCLE.—A certain period, or series of numbers proceeding orderly from first to last, then returning again to the first, and so circulating perpetually.—*Hutton*. Cycles were invented for the purposes of chronology, and for marking the intervals in which two or more periods, of unequal length, are each completed a certain number of times, so that both begin again exactly in the same circumstances as the first. The *Cycle of Indications*, or *Roman indication*, was a period of 15 years.—*Brande*.

CYCLONES.—Rotatory storms or whirlwinds, occurring in the tropical seas of China, the

West Indies, and round Mauritius, but never on the Equator. Their diameter is generally about 200 or 300 miles, but sometimes exceeds even 500. The centre of the vortex (which is always calm) travels at a rate varying from 2 to 30 miles an hour. These storms are preceded by a singular stillness of atmosphere and a rapid fall of the barometer. They are perhaps the most destructive of all storms.—*Brande*. In 1838 Reid pub. his *Law of Storms*, and by means of this work correct information was rendered accessible. The subject is one of vital interest to the marine underwriter, and we may have occasion to recur to the subject under STORMS.

1858.—The great Cyclone at *Madras*. In some three hours it destroyed ships and property estimated at several millions sterling in value. The Cyclone travelled south, and turning up to the northwards, swept the China seas with sad havoc and disaster.

1864.—5th. Oct. A great Cyclone at *Calcutta*. Immense damage done on sea and land. About 100 ships are said to have been lost; while it was estimated that 60,000 people perished,—whole towns being nearly destroyed. [It is recorded in reference to this Cyclone that Captain Watson of the *Clarence*, observing the barometer falling, and foretelling the approach of the Cyclone, saved his ship by steering out of its range.]

1866.—1st and 2nd Oct. Great Cyclone in the *Bahamas*, at Nassau, New Providence. Above 600 houses and many churches and other buildings thrown down; between 60 and 70 persons killed, and a great many ships dismantled.

1867.—29th Oct. Great Cyclone at the *Virgin Islands* (West Indies), off St. Thomas. The royal mail steamers *Rhone* and *Wye* were entirely wrecked. The *Conway* and *Derwent*, and above 50 other vessels driven on shore. About 1000 persons are said to have perished. In Tortola much damage was done by houses being blown down, unroofed, etc. [A report reached England that the island was entirely submerged.]

1867.—1st. Nov. Another great Cyclone at *Calcutta*, but not so destructive as that of 1864.

1872.—Cyclone at *Madras*.

By a series of careful obs. of this class, underwriters will be enabled to indicate the seasons of danger, and take measures accordingly.

CYMDEITHAS "SICRWYDD" BYWYD DDI OGELIAD, which being done into English signifies "Society Security L. Ins."—or, *Security L. Ins. So.* This was a Welsh ins. co., founded in Lond. about 1840, with an authorized cap. of £250,000, in 12,500 shares of £20. It was most respectably constituted; the late Mr. Thomas Brassey being one of its trustees; while Richard Cobden, John Bright, W. S. Lindsay, Charles Geach, and other well-known M.P.s were directors, with Sir Joshua Walmsley, M.P., for chairman. Mr. E. Ryley was Act., and Mr. Ralph Coulthard Sec. The Co. does not appear to have reached maturity.

CYNANCHE (properly *kynanche*, from the Greek).—Literally *dog-choke*. Squinancy, squincy, quinsy, sore throat; throat disorder. The disease is supposed by some to be named from its occasioning a noise in breathing like that made by dogs when being strangled. By others it is said to be from the patient being obliged to breathe like a dog, with open mouth and protruded tongue.—*Forbes*.

Dr. Farr says in 22nd Rep. of Reg.-Gen. (abstracts of 1859), pub. 1861:

It is evident from the annexed T. that diphtheria was confounded down to 1858 with Cynanche, and to get an approximation to the actual deaths from the epidemic, the two forms must be put together; and when this is done, the rapid and regular process of the great epidemic becomes evident. In 1859 diphtheria (including Cynanche) was fatal to 10,184. [DIPHThERIA.]

CYPRUS, MARITIME CODE OF.—About the close of the 11th century, Godfrey de Bouillon and his followers, Crusaders, estab. a body of laws for the kingdom of Jerusalem, which they had conquered from the infidels. These were of two denominations:—1. *Assise de la Court des Barons*. 2. *Assise de la Court des Borges*, viz. Bourgeois or Burgesses. The former of these codes appears to have been revived or remodelled and both of them to have been preserved in the Island of Cyprus. As these are not unfrequently referred to by writers on maritime subjects, we have been induced to ascertain if either of them contain any reference to marine or casualty ins. We find nothing.

CYSTIS (properly *kystis*).—From the Greek, a bladder.

CYSTITIS, DEATHS FROM (Class, LOCAL; Order, *Diseases of Urinary Organs*).—The deaths from this cause are on the increase. In 10 consecutive years they were as follows: 1858, 256; 1859, 276; 1860, 299; 1861, 343; 1862, 342; 1863, 340; 1864, 383; 1865, 325; 1866, 393; 1867, 381. Over a period of 15 years ending 1864 they averaged nearly 15 to each million of the pop. living; over the 5 years ending 1864 they were 17 p. million.

The deaths in 1867 were: males, 318; females, 63. They are few in the early ages; increase steadily up to 65, and then retrograde.

D

- D'ALEMBERT, JEAN LE ROND.**—A celebrated philosopher and mathematician, born in Paris 1717; died 1783. He treated of the subject of Probabilities in several vols. of the *Opuscula*. He replied to the reasoning of Daniel Bernouilli as to the effects of the intro. of inoculation on the duration of human life; and contended that the motives of individuals and their disposition not to submit to the remedy proposed would alter materially his mathematical conclusions. He suggested that the empire of mathematics ceases when the course of natural events comes to be controlled by the will of man.—*Brown, Assu. Mag.* vol. vi. p. 142. [HUMAN WILL, OPERATION OF.]
- D'AMADOR, M. RISUENO.**—See AMADOR.
- D'ANIERES, M.,** pub. in the Memoirs of the Academy of Berlin, a paper entitled, *Réflexions sur les Jeux de Hazard*. [CHANCES, DOCTRINE OF.]
- D'AVENANT, CHARLES,** pub. in 1698, in his *Discourses on the Public Revenues, and on the Trade of England*, an essay, *Of the Use of Political Arithmetic in all Considerations about the Revenues and Trade*. This is included in his collected works, edited by Sir Charles Whitworth, M.P., and pub. in 5 vols. in 1771. In his works also [vol. ii. p 175] will be found a very full abstract of Mr. Gregory King's *Essay on Political Arithmetic*. [POLITICAL ARITHMETIC.] [POPULATION.]
- D'EON, CHEVALIER.**—In the latter half of the last century numerous ins. wagers were entered upon in Lond. regarding the sex of this person, who filled a diplomatic position at the Court of St. James from France. The entire details of this remarkable case, which was several times before our Law Courts, will be included in our art. on INS. WAGERS.
- D'ESCURY, THE BARON COLLOT,** pub. in 1835, at the Hague and Amsterdam, *Hollands room in Kunsten en Wetenschappen* [*The Glory of Holland in the Arts and Sciences*], in which are some interesting remarks on De Wit. [MORT. OBS.]
- D'IVERNOIS, SIR FRANCIS.**—A gentleman who devoted many years to the elucidation of various phenomena relating to the law of mort. [MORT.; LAW OF.]
- DALBY, J.,** was Resident Man. of *Anchor F. and L.* for several years prior to 1850; and while in that position became nominal holder of certain L. pol. which formed the subject of litigation in the now famous case of *Dalby v. India and London*.
- DALBY v. INDIA AND LONDON ASSU. CO.**—A short outline of the leading facts of this important case, which changed the law regarding the insurable interest of creditors in the lives of their debtors [CREDITORS] [INSURABLE INTERESTS], will be found useful for reference. The *Anchor Ins. Co.* (by its resident director, Mr. Dalby) effected on the 9th Jan. 1847, a whole-term life pol. with the *India and London Ins. Co.* for £1000, by way of re-ins., on the life of His Royal Highness Adolphus Frederick Duke of Cambridge, at an ann. prem. of £122 15s. 10d. At the time of effecting the said pol., and thence until the death of the said Duke, the *Anchor Co.* was interested in the life to the amount of the ins.; and the plaintiff had complied with all the conditions and requirements of the pol. The defendants pleaded that the *Anchor Co.* was not interested in the life of the Duke in the manner alleged; but stated as follows:—That the *Anchor* had granted to the Rev. John Wright 4 pols. on the said Duke, amounting in the whole to £3000. Three of the pols. were dated 18th Oct. 1843, and the other the 3rd Nov. 1843—two of them being for £1000 each, and the other two for £500 each. The *Anchor* re-insured generally as against these sums. By a deed bearing date 1st Dec. 1848, in consideration of the surrender to them by Wright of the said 4 pols., and of the sum of £325, the *Anchor Co.* granted to Wright an annu. of £120 during the joint lives of himself and his then wife, and of £80 for the life of the survivor. The pols. were then delivered up and cancelled. At the time the pols. were effected, and when surrendered as aforesaid, a Mr. W. C. Curties was a Director of the *Anchor*; after the cancelment of the 4 pols. the re-ins. pol. was handed over to Mr. Curties, and all the prems. afterwards paid to the *India and London* were from funds supplied by Curties. The cancelment of the pols. and the handing over of the re-ins. pol. to Curties were not communicated to the *India and London Co.* The Duke died on the 8th July, 1850. The re-insuring co. refused to pay on its pol. An action was brought by the *Anchor*. The *India and London* filed a bill to stay proceedings. In May, 1851, Mr. Curties told the *India and London Co.* of the facts attending his becoming the owner of the pol. It was admitted that Mr. Dalby had never had any interest in the life of the Duke, and the case was decided against the *Anchor*.
- This decision was appealed against, and in 1854 the case came on in the Exchequer Chamber. The case of *Godsall v. Boldero* was much relied on by the *India and London*; but in the end judgment was given in favour of the plaintiff Co., on the ground that where a pol. effected by a creditor on the life of a debtor was valid at the time it was entered, the circumstance of the interest of the holder of the pol. in such life having ceased before the death happens does not invalidate the pol. under the Gambling Acts. It was further held that L. ins. was not a contract of indemnity.
- DALE, R. N.,** Underwriter *Brit. and Foreign Marine* from the commencement of its bus. down to the present time.
- DALE, WILLIAM.**—In 1772 there was pub. anonymously, *Calculations deduced from First Principles in the most familiar Manner by Plain Arithmetic; for the use of the Societies instituted for the Benefit of Old Age; intended as an Introduction to the Study of the*

Doctrine of Annuities. "By a member of one of these Societies." The author is now known to have been William Dale. The book did not at the time, nor has it since, we think, received the attention its merits justify.

The existence of Dale as a writer upon such subjects was known about the time this work was pub.; and some contemporary writers speak of him as an assistant of Dr. Price—which is a simple mistake. We have learned the following details concerning Dale. He was house steward to a nobleman; was about 46 years of age when he pub. the book; and was engaged upon it when Dr. Price's *Observations* first appeared. He was a candidate for the Secretaryship of the *Provident Annu. So.*; but made far too candid a statement of his views regarding that inst. to be likely to obtain the post.

The following dedication of his book deserves to be put upon record :

"In respectful gratitude to the best of masters and the most amiable mistress, this Essay, intended to inform the inattentive, to undeceive the credulous, to caution the unwary, and to detect, expose, and suppress some newly-established scandalous impositions on the public, is most humbly inscribed to the Duke and Duchess of Beaufort, by their Graces' late domestic, ever most obedient and dutiful servant, the Author."

In the preface there is the following :

Why the writer engaged in the present inquiry ; why he continued it, and now published the result, after the appearance of so complete a treatise as Dr. Price's, will be mentioned in the course of the ensuing pages. But he should here acknowledge the consciousness of his presumption in commencing author, without having had the advantage of a liberal education, or having the happiness to boast of the least assistance; the want of which will too frequently, he fears, betray themselves by the incorrectness of style, and too numerous grammatical errors. But he trusts it will appear that he has paid particular attention to what he conceives to be the most essential part in a work of this kind, which he hopes will be found pretty correct in figures (considering the multiplicity of them), however defective in the elegance of diction.

Had his abilities been still less, let casuists determine whether, after having prepared, he is not bound in conscience to pub. *Calculations*, which he supposes are made in a manner that is plainer and easier than can be commonly met with, and when he is at the same time privy to the undue advantages daily taken of the intricacy of the subject?

He commences his work with an explanation of *Decimals*, "which, on account of their easy operation, will be here found extremely useful." He then proceeds to treat of *Compound Int.*, which he says "is each year's int. added to the former principal; itself becoming thereby a part of an increased principal, gaining int. each successive year." He next progresses to *Reversion* or *Discount*; and then arrives at the *Prob. of Life*, where he constructs a T. of the prob. of life, and also reviews *Postlethway's* T., Simpson's, and Halley's. The principles and premises so enunciated he proceeds to apply in his *Calculations*, under the following arrangement :

1. By the above three T. [his own, Simpson's, and Halley's], and also by Dr. Price's T., showing the true prob. of life in London.
2. In what time a so., consisting of members aged 50, would totally expend a fund (that otherwise would supply annu. during life) if double the annu. that was purchased should be granted.
3. In what time a single annuitant would expend his stock in the last case.
4. A table showing the value of an annu. for age 40 to commence immediately, or after any number of years, not more than 10, with the int. made of the purchase-money.
5. Proofs of the several sos. requiring more than the just values for the half-yearly payments.
6. A table showing the value of £44 annu. to commence when 50, for every 5th age to 80, by the four different T. of mort.
7. The worth of an annu. during life to commence when aged 21.
8. Several calculations applicable to sos. Examination of an Impartial So.; of the Political Gotham So. [These are imaginary sos., introduced for the purpose of exhibiting respectively true and false principles of working.]
9. An examination of each particular so. instituted for the benefit of OLD AGE, showing what each member pays, reduced to the value of a single payment in present money. What annu. ought to be received for the sum paid. Whether the several ages pay in due proportion to each other. Whether paying with admission, be equal to paying without admission fine. What annu. each so. can afford to pay. In what proportion to those which are members, or to the annu. the so. can pay, a person must pay to become a member according to proposals delivered out in Dec. 1771.

The sos. so inquired into were the *Laudable*; *Amicable* So. of Annuitants; *Provident*; So. of *Lond. Annuitants*; *Equitable* So. of Annuitants; *Westminster Union* So.; *London Union* So.; *Consolidated* So.; *Public Annu. So.*; *Rational* So.; *Friendly* So. of Annuitants. Each of these sos. is spoken of under its respective head in these pages.

Then there is an "Addenda," containing—1. A plan of an Impartial General So., in which the amount of the annu., whether to commence immediately, or at what time hence, and the mode of paying for it, is at the choice of the purchaser. 2. A new method of correcting the values of annu. proposed. 3. Mr. Simpson's value of annu., and Mr. De Moivre's hypothesis particularly considered. 4. Method to clear an estate of mortgages. 5. A plan to provide for the aged poor.

In our Art. ANNUITIES ON LIVES, we have given a pretty complete outline of Dale's views of the annu. sos. of that period, and of his mode of investigation: we need not, therefore, re-enter upon that branch of the subject.

In the preparation of his mort. T. from the *Lond. Bills of Mort.* he was led to make a critical examination of the circumstances attending those Bills; in this we propose briefly to follow him :

It should not be concealed that the B. of Mort. for *Lond.* are very far from being perfect: it is as certainly known as that 1,041,637 have been buried, that no more than 673,251 have been christened

whence it appears that there have been omissions in the one, or add. to the other: or rather there have been both. The yearly burials at a medium, 23,608; christenings, 15,657; burials more than christenings, 795r. The burials every year have constantly much exceeded the christenings: for the nearest they have been to equality since A.D. 1646 was in the year 1671, when the burials were 15,729; christenings, 12,510; and in 1758—burials, 17,576; christenings, 14,209. And the burials have been nearly double the christenings, nay sometimes even more, as in 1740—burials, 30,811; christenings, 15,231; 1741—burials, 32,169; christenings, 14,957.

It must be sufficiently obvious that if 7051 natives of Lond. were to be buried every year more than born, this city, however populous, would soon be exhausted of its inhabitants: but the direct contrary seems to be the case. The 795r are then very reasonably supposed to be aliens (calling all such who were not born, or not christened, in Lond.), and are supplied by the arrival of traders, French refugees, and other foreigners; by persons out of the country to be apprenticed, to be servants, to be workmen, to be cured of diseases, on law affairs, and on various occasions.

This is corroborated by a well-known evidence, which is that in country towns not very large, and in villages, the christenings do always exceed the burials.

Likewise there may be many omissions in the christenings, supposed to proceed from such Dissenters and Papists who, though not christened, may possibly have been buried according to the rites of the Church of England, and, consequently, though omitted in the first, are nevertheless numbered among the last in the B. of Mort.

He sees the difficulty of determining “at what age, in what number, and at what time, these aliens intermingle with the natives,” but he still desires to demonstrate his proposition:

The aliens may be considered as constituting another and separate B. of Mort.: then if the burials of the aliens be united with the natives, so likewise should their births; or if the births of the aliens be separated from the natives, so likewise should their burials: but though this is evident, still the former difficulty remains.

So far as the subject affects annu., *perhaps it might be adjusted by one general B. of Mort.*; for as annu. live in all parts of the kingdom, a calculation made from such a T. must be nearer truth than any particular one.

Suppose, for an instance, a city to be surrounded by 100 towns, villages, etc., which places, one with another, have 50 born yearly, and that of the 50 five go ann. to settle in the city, and there die. In the city suppose 1000 births ann.: it is presumed the effect would be that the city would bury 1500 yearly, and the villages, towns, etc., only 45 each: for out of every 50 born, the villages *lost*, and the city *gained*, 5. In such a case, a calculation made either from the city B., or country B., could not be just when taken separately. *But if every place kept a regis., and all of them were united together, the loss would be restored.*

Again, suppose 100 persons, consisting of actual foreigners, that is such as arrive from beyond the seas, were also buried in the city, more than the 1500: then $\frac{1}{16}$ of the buried would be the said foreigners; but if no such foreigners are buried in the villages, etc., their number in proportion to the general B. would be but $\frac{1}{61}$.

These are two apparent advantages that might be gained by estab. B. of mort. for every parish throughout the nation.

Returning to his own and the preceding mort. T. based upon the Lond. B. he says:

One defect in the preceding T. may be corrected with clearness and certainty: for in 43 years 26,495 abortives and still-born are inserted in the Bills among the burials—but not accounted to the births, because *not christened*. In a calculation that compares births with burials and the prob. of life, these abortives cannot be admitted; and it is very plain that the whole must be taken from those aged under 2, for they were included in that number. In 43 years, buried under 2, 372,572; abortives, 26,495—346,077. The difference these occasion between the following T. and the preceding ones proves that very great defects must arise from aliens intermingling with the natives in the number of burials, when their births are not brought into account.

At page 85 of his work Dale says:

Most of the calculations were made not only thus far, but also beyond, before the pub. of Dr. Price's excellent *Obs. on Reversionary Payments*, etc., in which there is a T. of the true prob. of life in Lond., which the reader no doubt would wish to see compared with the preceding ones. It is therefore here inserted, and it will be found to give the purchase-money more than Mr. Simpson's T. from the age of 5 to 40, though afterward less for annu. by reversion; but for immediate annu. it gives the purchase-money more than Mr. Simpson's T. till above 50 years of age.

We have already stated that Dale is the first writer to whom the advantages of the Columnar method presented themselves. [COLUMNAR METHOD.]

Dr. Price, in one of the next succeeding eds. of his *Rev. Payments*, says concerning this work:

If any person wants more information than I have given him concerning these sos., he should consult a work of great merit, published since the 2nd ed. of this treatise, and entitled *Calculations*, etc., by Mr. Dale, a member of one of the sos. In this treatise there is not only a very ample account given of the insufficiency and iniquity of the schemes of these sos., but the principles on which the values of all annu. on single lives are determined, and the method of calculating them, are explained with the greatest clearness.

In the *Gents. Mag.* for 1775 there will be found several communications of much interest, on the subject of the annu. sos. of that period. In this correspondence Mr. Dale took part.

In 1777 Mr. Dale pub. *A Supplement to Calculations of the Valuation of Annu.*, pub. for the use of sos. instituted for the benefit of age; containing various illustrations of the Doctrine of Annuities, and complete Tables of £1 Immediate Annuity, being the only one extant, by half-yearly intervals and payments; together with an investigation of the Laudable So. of Annuitants, showing what each member hath purchased, and the real mort. therein from its institution, compared with Dr. Halley's Table. Also several pub., letters and anecdotes relative to that So., and explanatory of proceedings in the present year. To which are added a Table and various Obs. to elucidate the subject of the National Debt occasioned by Mr. Lawrie's “*Few Remarks on Dr. Price's Obs.*”

In this *Supplement* Dale replies very fully to those who had attacked and vilified, rather

than refuted his former work. One of the opposition writers ridiculed the arguments of Mr. Dale as "formed on suppositions made by obs. on B. of Mort." The author says, "It is believed the examination of the state of the sos. with the various methods employed in the investigation may be such further illustrations to the doctrine of annu. as to render an apology for pub. them by way of support to former calculations altogether unnecessary."

Dr. Price says of this *Supplement* :

No person who understands common arithmetic can avoid being convinced by the evidence offered in this tract, nor can any honest man avoid being shocked by the narrative it contains of the obstinacy with which the majority in this So. have persevered in error, contrary to the efforts of the more respectable part of the So., and in defiance of reason, justice, and humanity.

Mr. Wm. Morgan said in 1779, in quoting *Calculations*, etc. : "The author of this work (Mr. Dale) has lately pub. a *Supplement* to it; and he deserves the highest praise for the pains he has taken to detect and expose those bubbles, which were some time ago estab. under the name of Sos. for the Benefit of Old Age."

Mr. F. Hendriks, in the *Assu. Mag.* vol. i. p. 15 (part 2), speaks of Dale's work as in some respects "singularly original"; and directs attention to certain passages of it, as "most material in the hist. of the origin of auxiliary T. for life contin."

Mr. W. T. Thomson says, *Proof Sheets*, 1856 : "Dale's work may be called arithmetical, but it is one of considerable originality; and his arrangement of his calculations in a columnar form, such as to render it extremely doubtful whether strict justice would not give him a share in the invention of that method." Again : "It is the fashion to sneer at such labour as Dale's, but I am inclined to think he knew more of his subject than some who affect more."

Dale, in his *Supplement*, announced as preparing for the press "by the same author" : *The Doctrine of Annuities for Widows made easy. With Examination of all the Calculations pub. Anno. 1772 by the Laudable So. for Benefit of Widows. Also Exemplifications of Imperfections in all the present Tables of Mort. ; with new Tables of the Value of Annu. deduced with greater accuracy than any heretofore pub.* We believe this work was never pub. We have made most diligent search without finding any mention of it.

We believe our copy of the *Supplement* is the only one now extant. We should be glad to know of the existence of any other copy. [ANNUITIES ON LIVES.] [COLUMNAR METHOD.] [LIFE CONTINGENCIES.] [LOND. MORT. T.] [WIDOWS FUNDS.]

DALE'S TABLE OF MORT.—See LONDON T. OF MORT., 1772.

DALGLISH, WILLIAM, JUN., previously a merchant in Glasgow, was appointed Man. of *City of Glasgow Life* in 1839, and remained in that position down to end of 1842. He died in 1870.

DALTON, WILLIAM, was Sec. of *Mercantile Provident* in 1854.

DAMAGE.—A loss or injury by the fault of another, e.g. by an unlawful act or omission; any hurt or hindrance that a person receives in his estate; also the compensation to be fixed by the jury when they find a verdict for the plaintiff. The term is derived from the Anglo-Saxon.

Questions of damage arise in several forms under contracts of ins. We propose to take a brief survey of these.

Marine.—The damages which insurers under contracts of Marine Insurance have to bear are described in the policies: however, a distinction is everywhere to be made between the damage that may happen to ins. goods on board a ship, and that which occurs by an actual shipwreck; for this last damage is without doubt to be made good by the insurers; but the former may proceed from their bad *storage*, or their being put in a place exposed to wet, from a deficiency in caulking the decks, or otherwise, which faults the ship ought to be answerable for.—*Magens*, 1755.

Insurers are not answerable for damages proceeding from the fault of the *master* and mariners, for want of good tackle and cordage; or because of an improper working of the ship, or that she is not well moored, or the hatches not well secured, or if the goods have not been well *stowed*: as if dry goods be placed under casks of oil, brandy, wine, etc.; if the ship be overloaded; or if there be any diminution or alteration of the effects. By the nature of the contract of ins., underwriters are only answerable for losses that happen by unavoidable *accidents*, which are entirely foreign to the *faults and negligencies* of masters and mariners.—*Valin's Commentaries*.

Fire.—Questions of damage arise out of Fire Ins. in several different forms. Thus, by the *Metropolitan Fire Brigade Act*, 1865—28 & 29 Vict. c. 90—it is enacted (sec. 12) that the chief or other officer in charge of the brigade at any fire is authorized to take "any measures that may appear expedient for the protection of life and property, with power by himself or his men to break into or through, or take possession of, or pull down, any premises for the purpose of putting an end to a fire, doing as little damage as possible." And further, "any damage occasioned by the fire brigade in the due execution of their duties shall be deemed to be damage by fire *within the meaning of any pol. against fire.*" Other Acts, as the *Salford Improvement Act*, contain like provisions.

The principle here estab. by the Legislature is not new. In the case of *Manby v. Scott*, before the King's Bench in 1660, the Judges laid it down: "The law of necessity dispenses with things which otherwise are not lawful to be done: *as to throw down my*

neighbour's house for preventing the spread of fire; to throw goods out of a boat when it is overlaid, and the like." [FIRE PROTECTION.]

The same principle was acted upon to a considerable extent in the case of the great fire at Boston, U.S., in Nov. 1872.

The question of damages arises in another form. In the case of fire the insurers claim the right to enter upon the premises for the purpose of ascertaining the extent of the damage, securing salvage, etc.; and for these purposes to keep possession of the premises for a *reasonable time*. If they retain possession beyond a reasonable time, they will be liable for damages. This was so held in the case of *Oldfield v. Price*, 1860; where it was also held, that the payment into Court as to the trespass up to a certain time, admitted that up to that time the defendants were trespassers.

In the more recent case of *Cumberland v. Albert Ins. Co.*, in the Lord Mayor's Court in 1866, damages were recovered by the plaintiff on the ground that the insurers had kept possession of the premises for two months, entirely stopping the plaintiff's trade.

In the case of *Brown v. Royal Ins. Co.*, 1859, the facts were as follow:—The defendants had executed a pol. ins. plaintiff's premises against fire, reserving to themselves "the right of reinstatement in preference to the payment of claims." The premises were damaged by fire, and defendants elected to reinstate them, but did not do so. To an action for not paying, compensating, or reinstating, defendants pleaded that they elected to reinstate, and were proceeding to do so, when the Commissioners of Sewers, under the Metropolitan Building Act, 1855, caused the premises to be taken down, as being a structure in a dangerous condition; and that such dangerous condition was not caused by the damage from the fire. On demurrer, held by Lord Campbell, C. J., Crompton and Hill (*dissentiente* Erle J.), that the plea was bad, inasmuch as the contract to reinstate (which became the one contract under the pol. after the election made), being lawful at and ever since the time of contracting, the impossibility of its performance was no defence, and defendants were bound, if they could not perform it, to pay damages for not doing so.

By the 3 & 4 Wm. IV. c. 42 (1833)—*An Act for the further amendment of the Law, and the better advancement of Justice*—authority is given under sec. 29 to juries to give damages in the nature of int. in (*inter alia*) actions on pol. of ins. in cases where there has been undue delay, or vexatious defence.

The Ins. Stat. of Missouri provides that in any action against any ins. co., if the jury believe that such co. has vexatiously refused to pay the loss, they may allow damages not exceeding 10 p.c. on the amount of the loss, and the Court shall enter judgment for the aggregate sum found in the verdict. It has been held in a case arising under that stat., [*Brown v. Railway Passengers Assu. Co.*, 45 Mo. 221] that the whole question of vexatious refusal or delay is a matter of fact, to be determined by the jury; and it need not be explicitly proved that the delay or refusal was vexatious.

DAMAGES, MEASURE OF.—In all classes of ins. wherein the contract is one of indemnity, the measure of the damages—that is, the principle upon which the damage is to be ascertained or assessed—must more or less frequently arise. We propose briefly to note some of the leading points of practice.

In *Marine Ins.*, custom has very much settled the practice. The average staters or adjusters apply the principles in common use from time to time; and so custom becomes imperceptibly modified and adapted to progressive circumstances.

In *Fire Ins.*, where the "average clause" or practice of "average" prevails, the measure of damages naturally follows the custom of average, and very few questions appear to come before the Courts. But in the case of ordin. F. pol. ins. specific amounts, the questions which have arisen are very varied; particularly in the U.S., where, as we have before remarked, the conditions of ins. are more strictly enforced than in the U.K.

In the case of *Hercules Ins. Co. v. Hunter*, before the (Scotch) Court of Session in 1836, where machinery, which was ins. for a specific sum, had been destroyed, it was held, that the actual value of the property destroyed, and not the sum named in the pol., was the amount the insured was entitled to recover; and the intrinsic market value is the only rule for estimating the value.

In the case of *Vance v. Foster*, before the Irish Courts in 1841, where the ins. was upon a cotton mill and machinery, it was held, that insured was entitled to recover only the actual damage, which damage on the machinery might be ascertained by estimating the cost of fitting up "new" machinery in the mill similar to that which had been destroyed, and deducting from amount of such cost the difference in value between the machinery in the mill as it was immediately before it was destroyed, and the "new" machinery of a similar description when fitted up.

In the case of *Carpenter v. Washington Ins. Co.*, U.S. Court, 1842, it was held, that an ins. to a mortgagee is an ins. of his debt, and the insurer is only liable to the amount of that debt; but if a pol. has been taken out by a mortgagor, and has been assigned as collateral security to the mortgagee, the entire loss may be recovered.

In the case of *Marchesseau Merchants' Ins. Co.* (Louisiana), 1842, it was held, that the contract of ins. being one of indemnity, this indemnity must be adjusted on the principle of placing the insured, as near as may be, in the situation he was at the com-

commencement of the risk: the amount of insurable interest is the market value of the articles at the time and place of the commencement of the risk, and when they have been purchased near that time and place, the cost to the insured is the most satisfactory though not the only criterion of their value.

In the case of *Henderson v. Western Marine and F. Ins. Co.* (Louisiana), 1845, it was held, that where the defendants, being sued on a pol. of F. ins. issued by them, had consented that the property damaged by fire should be sold by auction, the price at which it is sold is a proper criterion by which to estimate the damage to the insured.

In the case of *Hoffman v. Western Marine and F. Ins. Co.* (Louisiana), 1846, the principles embodied in the two preceding cases were more fully exemplified, thus:—When goods ins. against fire are destroyed, the insurer is bound to pay their value at the time of the loss; if damaged only, he is bound for the difference between their value in their sound and damaged condition. When the goods are so much damaged as not to be saleable in the ordinary mode, a fair sale at auction, made by the insured after reasonable notice to the insurers, or with their knowledge, may be considered by a jury in estimating the damage, and in ascertaining the amount of the indemnity; but the price for which such damaged goods were sold by auction by the insured, without notice to or knowledge by the insurer of the sale, is not sufficient evidence of the value of the goods in their damaged condition.

In the case of *Brinley v. National Ins. Co.*, Mass., 1846, it was held, that when a building insured is totally destroyed by fire, the cost of rebuilding does not furnish the true rule of damages. Under such a rule, the amount recoverable would be more than a fair indemnity. There is no rule of damages applicable to such cases; and where no rule of damages is estab. by law, the jury are to decide the question, and to their decision there can be no legal exception.

In the case of *Niblo v. North American Ins. Co.*, N. Y., 1848, where a building was leased, and destroyed by fire, after lessee had insured it:—Held, that he could only recover for the value of the tenements for occupation, subject to rent, and that to determine that value, the question should be put to the jury in this shape—"How much would a stranger, having no engagements or contracts pending, have given for the unexpired lease when the fire occurred?"

In the case of *Wolf v. Howard Ins. Co.*, N. Y., 1847 (affirmed on appeal, 1853), where pol. ins. against "all loss or damage by fire," said loss and damage to be estimated according to the true and actual cash value of the said property at the time the same shall happen:—Held, that the insured might recover the full and actual value of imported goods then in the Custom House, although the duties had not been paid or secured.

In the case of *Parker v. Eagle Fire Ins. Co.*, Mass., 1857, the pol. on a building provided that the insurers "may make good the damage by repairs, and the insured shall contribute one-fourth of the expense:"—Held, if the insurers, intending to comply with this provision in good faith, make repairs of substantial benefit, though not fully making good the loss, the measure of the insured's damages is the difference between the value of the building as repaired and what it would have been if fully repaired, deducting one-fourth of their value to the estate.

In the case of *Kernochan v. N. Y. Bowery Fire Ins. Co.*, N. Y., 1855 (affirmed on appeal, 1858), it was held, in a suit brought by mortgagee on a pol. of ins. against fire, it is not competent for the ins. co., in order to defeat or diminish the recovery of insured, to show that the mortgaged premises, notwithstanding the loss, are still ample security for the debt. So in the case of *Rex v. Insurance Co.*, Penn., 1858, where a pol. was held by mortgagee, whose mortgage was given partly for the price of the land, and partly to secure payment of advances made for the building, it was held, that after a loss by fire, the mortgagee might recover the whole ins., and was not obliged to look to the land for its value, although the land was sufficient to satisfy the balance of the mortgage due; but upon payment of the loss the insurers would be entitled to subrogation, and could enforce the security against the land.

In the case of *McCraig v. Quaker City Ins. Co.*, in the Q.B. of Upper Canada, in 1859, where a pol. of ins. on a steam-boat against fire provided that in the event of loss the damage should be estimated "according to the true intent, and actual cash value of the said property at the time the same shall happen:"—Held, that in estimating loss the defendants were not entitled to have taken into account a depression in value of steamers generally, caused by circumstances which might be temporary only.

In the case of *Commonwealth Ins. Co. v. Sennet*, Penn., 1860, in a pol. of ins. on reaping machines it was stipulated that the ins. co. "would make good to the assured all loss or damage to the property by fire, the said loss or damage to be estimated according to the true and actual cash value of the said property at the time the same shall happen." There was evidence offered to show that the machines, on account of defective principle, were only valuable as so much wood and iron; but the Judge instructed the jury that the cost of construction, and before the implement was tried in the field, would be the measure of damages:—Held, on appeal, that such instruction was erroneous, and the measure of damages was that agreed upon in the pol., to wit: "the actual cash value at the time of the loss and damage." Also that the option to replace the machinery,

if destroyed, was a reservation for the benefit of the Co. ; they were not bound to adopt it. What it would cost, therefore, to replace the reaping machines, did not furnish the rule for the damages which the Co. must pay to make good the loss. Nor was the fact that the machines were constructed under a patent of any importance. Patented or unpatented, what they were worth at the happening of the fire was, by agreement of the parties, to be the measure of their value ; and this must be ascertained by testimony, as is done in every other case where the value is not fixed.

In the case of *Grant v. Aetna Ins. Co.*, in the Queen's Bench, Lower Canada, 1860, the pol. against fire, on a steamboat, provided that the "loss or damage shall be estimated according to the true and actual cash value of the property at the time the loss shall happen." The defendants adduced evidence of the market price and value of other steamboats, similar or nearly so to the one ins., and at or about the time of the accident, as the policy criterion of the value of the boat insured, which evidence the Court refused to admit, and afterwards instructed the jury "that the value was to be the fair value at the time of the loss, unaffected by local circumstances or by other accidental causes of depreciation":—*Held*, on appeal, that the Court erred, both in its refusal to admit the evidence, and in its instruction to the jury ; that the value of the subject insured was to be determined in conformity to the stipulation in the pol., and that the defendants' criterion of value was the proper one.

In the case of *Morrell v. Irving Fire Ins. Co.*, N. Y., 1865, there was a provision in the contract, that instead of paying the damages in money in case of loss, the insurers may elect to rebuild on giving the notice stipulated in such contract ; a loss occurring, and the insurers electing to rebuild, giving the required notice:—*Held*, the contract is thereby converted into a building contract, and the amount of the ins. named in the pol. ceases to be a measure of damages.

In the same case it was further *held*, that where the insurers elected to rebuild, and partially performed the contract, but desisted therefrom before fully completing it, the rule of damage in an action brought by the insured for the non-performance of the building contract is the amount it would take to complete the building by making it substantially like the one destroyed, independent of what had already been expended thereon.

In the case of *Burgess v. Alliance Ins. Co.*, Mass., 1865, it was *held*, if a partial loss occurs upon a domestic pol. for a sum expressed in dollars, upon property situated in a foreign country, the rule for estimating damages is to determine the loss at the place where it occurred, in the currency of that country, and then to find the equivalent in the country where suit is brought, by determining the actual intrinsic value of the currency of that country, as compared with the currency of the other. And that the pol. contains a provision that in case of loss the Co. shall have the right to replace the articles lost or damaged with others of the same kind, and equal goodness, does not affect this rule.

In the case of *Brady v. North-western Ins. Co.*, Michigan, 1863, a very important point was involved. It was contended by the plaintiff that the value of an insured building consists in its adaptation to use, as well as in the materials of which it consists ; and if it cannot be restored to use after the fire, from causes beyond the control of the parties, the loss is total, less the value of the materials rescued. The building in question was a three-storey wooden warehouse, situate within the fire limits of Detroit, within which limits the reconstruction or repair of any wooden building injured by fire was prohibited unless by leave of the Common Council. The Common Council, under its Charter and Ordinances, refused to permit the repair of the building injured. It was *held*, therefore, to be a total loss, and the insurer was liable for the full amount of the ins.

The following add. facts and reasoning are important. The value of the building before the fire was 4000 dollars ; it was ins. for 2000 dols. In the absence of leave to repair, its value after the fire was less than 100 dols. The Charter and Ordin. were in existence at the time of the last renewal of the pol. Whether, in case of damage or partial loss, the Common Council would permit a repair of the building, was a risk which the insurer took upon himself : because the loss and injury to the insured might depend in amount upon such action of the Council, yet they would be in fact the consequence of the fire ; and because, too, by the terms of the pol., the insurer reserved the right to repair or not at his option, thus taking the risk of the power to repair, and of all loss which might accrue, if, from any cause, repairing should be impossible.

The following are a few of the causes of damage which may arise in connexion with *Life Ins.* :—Where a person gave to a third party a mortgage as security for a loan, and also a pol. of ins., upon which he covenanted to pay the prems. to the Co., but gave the third party authority to pay them if he did not, and to add the amount to the mortgage debt, it was *held*, that the third party could recover only nominal damages against him if he failed to pay the prems.—*Hodgson v. Hodgson*, 1837. So in *Barber v. Butcher*, 1846, it was *held*, on the breach of a covenant to pay prems., the measure of damages is the real injury sustained through loss of the security, or expense of a new pol. In *National Assu. and Investment Co. v. Best*, 1857, where two polys. of life ins. were made the security for a debt, and the defendant covenanted to pay the prems., but failed to do so, it was *held*, that he was liable in damages, not for the amount of the prems. he had failed to pay, but only for a nominal sum, because the policies were only a security, and it did not appear that any actual injury had been sustained. The Court, however, intimated that

if the plaintiff had paid the premis., or procured another pol., there would have been ground for substantial damages.

In the case of *Harvins v. Coulthurst*, 1864, where a pol. had been assigned to trustees for creditors, with a covenant to pay premis. and not do anything to forfeit it, and the insured violated a condition, and so vitiated the pol., it was *held*, that he was liable to pay the value of the pol., to be assessed by an act., taking into consideration the covenant of the insured to pay premis. [CLAIMS.] [CONSEQUENTIAL DAMAGES.] [CONTRACT OF INS.] [FIRE INS. LOSSES.]

DAMME, JUDGMENTS OF, OR LAWS OF WEST CAPELLE.—In the 13th and 14th centuries the cities of Bruges and Damme, situated near each other, carried on from their common seaport, Sluys, an active and extensive maritime traffic. Flanders was indeed the intermediate station and dépôt for the southern and the northern countries of Europe.

Such a state of maritime commerce required regulation; and like the other nations of Europe, the Flemings or Belgians, before estab. regular digests of laws, appear to have been guided by customs and usages. These have been pub. by several writers from the orig. MS., under the appellation of *Judgments of Damme, or Laws of West Capelle*.

Verwer, a Dutch merchant and writer, contended indeed in his work—*Nederlands Seerichten*, pub. 1711—that these judgments were of earlier origin than the *Roles d'Oleron*; and he thought he had discovered a passage in them which these latter did not contain; but Pardessus, Reddie, and others have annihilated these pretensions. [VERWER, ADRIAN.]

The usages of the Damme, whether they reached Flanders by way of England, or directly from France, could not fail easily to find their way into the neighbouring countries, with which the relations of language and commerce placed that city in habitual correspondence; and it is therefore not surprising that they should have been adopted in Zealand, where they assumed the name of the Laws of West Capelle, and were afterwards pub. as such by Boxhorn and Van Leuwen.—*Reddie*, 1841.

DAMNIFICATION.—That which causes damage or loss.

DAMNIFY.—To endanger, to injure, to cause loss to any person.

DAMNUM FATALE.—Fatal damage, for which bailees are not liable. Among such "fatal damages" were included by the civilians, losses by shipwreck, by lightning, or other casualty; by pirates, and by superior force. Losses by fire, burglary, and robbery seem also to have been included. But theft was not numbered among such casualties.—*Story on Bailments*.

DAMS.—An arrangement of canvas on an iron frame, constituting a kind of bath, into which water from the mains or other sources is made to flow in order to supply the suction hose of fire engines.

DANA, R. H., JUN., member of the Boston Bar, U.S., pub. in 1841, *The Seaman's Friend, containing a Treatise on Practical Seamanship, with Plates; a Dictionary of Sea Terms; Customs and Usages of the Merchant Service; Law relating to the Practical Duties of Masters and Mariners*. An English ed. of this work was pub. simultaneously under the title of *The Seaman's Manual*, etc. 2nd ed. 1844; 3rd ed. 1856.

DANCE OF DEATH.—The triumph of death over all ranks of men was a favourite subject with the artists of the Middle Ages, and appears in rude carvings and pictures in various countries.

DANCING MANIA.—This mania, accompanied by aberration of mind and distortions of the body, first showed itself in the 13th century. Was very prevalent in Germany in 1374; and at other places in the 15th century. In the 16th century it appeared in Italy, where it was called Tarantism, and erroneously supposed to be caused by the bite of the Tarantula spider. The music and songs employed for its cure on this occasion are still preserved. Hecker wrote a very complete hist. of this mania; and Dr. Babington, his translator, has given some interesting notices of similar convulsive diseases occurring in Scotland.

DANGER.—Exposure to death, loss, or injury; risk, hazard, peril. They that sail on the sea tell of the danger.—*Ecclesiasticus* xliii. 24.

The omission on the part of a person seeking ins. to give the underwriter notice of any especial danger to which the risk proposed to be ins. may, within his knowledge, be then subjected, constitutes one branch of CONCEALMENT. In add. to the cases we have furnished under that head, we may draw attention to the following.

In *Lynch v. Hamilton*, 1810, it was *held*, that if a ship is advertised to be in danger, and the insured effects a pol. on "ship or ships," knowing that the ship in danger is one of them, without stating the ships' names, this is a concealment which avoids the pol., although the rumour was false.

In *Lynch v. Dunsford*, 1811, an ins. was effected on goods on board ship or ships from the Canary Islands to Lond., and at the time the insured's agent, who effected the pol., knew that one of the "ship or ships" was named the *President*; and at the same time there was a paper of communication stuck up at Lloyds, that "the *Harvard*, Marsh, arrived off Dover from Teneriffe; sailed 24th ult.; on the 27th, off the Salvages, fell in with the *President*, Owens, from Lanzasarte, deep and leaky"; but the agent did not communicate his knowledge of the ship's name to the underwriters: *Held*,—that the pol. was thereby voided, though the intelligence afterwards turned out to be false.

During the recent American war, 1863-4, the *Georgia* screw steamer obtained notoriety as a cruiser in the service of the Confederates. In May, 1864, she put into Liverpool, where she was dismantled, and this was also a subject of public notoriety, and, as such, known to the defendant, an underwriter at Lloyds. At Liverpool she was bought by the plaintiff at public auction, and converted by him into a merchant vessel. In Aug. 1864, plaintiff through his broker in Lond., effected with the defendant an ins. of the vessel for 6 months. The particulars furnished by the plaintiff were:—“*Georgia* s.s., chartered on a voyage from Liverpool to Lisbon and the Portuguese settlements on the West Coast of Africa, and back.” The vessel sailed from Liverpool, and was immediately captured by a frigate of the U.S. In an action on the pol. to recover for the loss, the defendant set up as a defence the concealment of the fact that the *Georgia* proposed for ins. was the late Confederate war steamer, and therefore liable to capture by the U.S. The jury found that the defendant was not aware that the *Georgia* which he was ins. was the Confederate steamer, but that he had, at the time of underwriting, abundant means of identifying the ship, from his previous knowledge, coupled with the particulars given by the plaintiff:—*Held*, that the defendant was entitled to the verdict.

DANGEROUS GOODS.—The great destruction of property and loss of life resulting from the carriage and stowage of dangerous goods—such as gunpowder, saltpetre, petroleum, nitro-glycerine, and many other compounds known in commerce and manufactures—at length rendered necessary some stringent legal enactments in view of remedy. Hence there has been passed—(1) the 25 & 26 Vict. c. 66 (1862)—*An Act for the safe keeping of Petroleum* [PETROLEUM]; (2) the 29 & 30 Vict. c. 69 (1866)—*An Act for the Amendment of the Law with respect to the Carriage and Deposit of Dangerous Goods*. Sec. 1 declares nitro-glycerine to be “specially dangerous.” Sec. 2 provides that other goods may be declared dangerous by Order in Council. 3. All such goods to be marked and notice given of their character, on being tendered for transmission, or to be stored in any warehouse, etc. Penalties, fine not exceeding £500, or imprisonment with hard labour not exceeding two years. 4. Mitigated penalties in case of absence of knowledge. 5. Any goods so sent or deposited to be forfeited. 6. “No warehouse owner or carrier shall be bound to receive or carry any goods which are specially dangerous.” 7. Gives interpretation of “owner” and “carrier.” 8. The provisions of 25 & 26 Vict. c. 66 (Petroleum Act) are extended to nitro-glycerine. 9. And may be applied to other substances. 10. Short title, “Carriage and Deposit of Dangerous Goods Act, 1866.” [DANGEROUS TRADES.] [GUNPOWDER.] [NITRO-GLYCERINE.] [PETROLEUM.]

DANGEROUS TRADES.—The 7 & 8 Vict. c. 84 (1844)—*An Act for regulating the construction and use of buildings in the Metropolis and its neighbourhood*—enacts as follows :

LIV.—And now, for the purpose of making provision concerning businesses dangerous in respect of fire or explosion, be it enacted with regard to the following businesses (that is to say), the manufacture of gunpowder or detonating powder, or of matches ignitable by friction or otherwise, or other substances liable to sudden explosion, inflammation, or ignition, or of vitriol, or of turpentine, or of naphtha, or of varnish, or of fireworks, or of painted table covers, or any other manufacture dangerous on account of the liability of the materials or substances employed therein to cause sudden fire or explosion, so far as relates to the erection of buildings in the neighbourhood of the place where any such bus. is carried on, and so far as relates to the carrying on any such bus. in the neighbourhood of public ways or buildings, *That it shall not be lawful hereafter to erect any building of any class nearer than 50 feet from any building which shall be in use for any such dangerous bus.*; but if a building already existing within 50 feet from any such building be hereafter pulled down, burnt, or destroyed by tempest, such building may be rebuilt; and that it shall not be lawful for any person to estab. or newly carry on any such bus., either in any building or vault, or in the open air, at a less distance than 40 feet from any public way, or than 50 feet from any other building or any vacant ground belonging to any other person than his landlord; and that if any such bus. be now carried on in any situation within such distances, then from the expiration of the period of 20 years next after the passing of this Act it shall not be lawful to continue to carry on such bus. in such situations; and that if any person erect any building in the neighbourhood of any such bus. contrary to this Act, then on conviction thereof before two Justices, he shall forfeit a sum not exceeding £5 for every day during which such building shall so remain near to such dangerous bus.; or if any person estab. anew any such bus., or carry on any such bus. contrary to this Act, then on conviction thereof before two Justices such person shall be liable to forfeit, for every day during which such bus. shall be so carried on, a sum, not exceeding £50, as the said Justices shall determine; and that it shall be lawful for the Justices also to award to the prosecutor such costs as shall be deemed reasonable.

Penalty and costs may be recovered by distress or otherwise; in default imprisonment not exceeding 6 months.

The Act was not to apply to public gas works or distilleries.

Upon the introduction into a crowded neighbourhood of any dangerous trade or process not expressly provided for by Statute, the remedy will be an indictment for a public nuisance, which is a misdemeanor punishable by fine and imprisonment, and of which the offence consists in doing anything which is an annoyance to all the Queen's subjects. On such an indictment the offender is tried as on a criminal charge. If convicted, an opportunity is given him, in practice, of abating the nuisance; but if he fails to do so, a substantial penalty will be inflicted. In such a case, where there is a continuing and urgent danger, the Court of Chancery may be applied to, and will interfere by injunction. —Bunyon, *Law of Fire Ins.* 1867.

In the case of *Hepburn v. Lordan*, 1865, the facts were as follows : The defendants had purchased about 2000 tons of damaged jute at a salvage sale after a fire at Meriton's

Wharf in Dec., and had removed about 400 tons of it to some wooden buildings adjoining the premises of the plaintiffs, for the purpose of drying it by throwing it about and spreading it upon hurdles. The plaintiffs were tanners, and insured in various offices to the aggregate amount of about £80,000, and great apprehension was felt lest the jute should again catch fire and endanger the large amount of property so insured. The sec. of one of the fire offices stated in evidence that of 9 large dock fires which had occurred during the preceding 7 or 8 years, entailing a loss exceeding £1,500,000, 8 had arisen from jute, that substance being very easily ignited and with difficulty extinguished. Much apprehension was also felt that this jute would spontaneously ignite; but although it was admitted that this substance would, if stacked in a green state, spontaneously ignite, and that cotton and some other vegetable fibres, if wetted, would do so, it was stated that no case had ever happened of the spontaneous ignition of jute after it had been thoroughly dried and imported. Upon this state of facts the plaintiffs applied to the Court for an injunction to restrain the alleged nuisance; and V. C. Wood, premising that he had little doubt but that an indictment would be sustainable in respect of the nuisance which the defendants were committing in bringing such large quantities of inflammable material upon the premises and disposing of them in so dangerous a manner, granted an interim injunction to restrain the defendants from permitting the material to remain upon the premises, and from bringing any more of it there; the plaintiffs undertaking forthwith to indict the defendants for the nuisance, and to abide by any order as to damages, but allowing 14 days for the removal of the jute. [EXPLOSIONS.] [FIRE PROTECTION.] [GUNPOWDER.] [JUTE.] [LUCIFER MATCHES.] [PUBLIC HEALTH.]

DANIEL, HENRY, of the firm of Alexander and Daniel, assessors of fire losses, Bristol, gave evidence before the Select Parl. Committee on Fire Protection in 1867. They had been in the bus. for nearly 40 years, and had settled losses for many of the principal fire offices, probably 100 losses p.a. The following is an outline of his evidence:

5521. Do you find in your experience that the claims are generally fully paid by the ins. cos. or that there is a large deduction?—There is almost invariably a very large reduction from the first statement of the claim, showing the falsity of the whole system.

5522. Do you find that there are more losses in any particular district than in another?—I have found South Wales is a very bad district, more especially a few years ago. . . .

5526. In what class of buildings do you find most fires occur?—In commercial houses more than among farmers.

5527. You find there are more fires in commercial houses than in ordinary dwelling houses?—In shops most of all.

5528. What class of traders are they generally: are they large traders or small traders?—They are more of the medium class of men, the claims ranging from £300 to £1000.

5529. Do you find that those fires take place more in one trade than in another?—The drapery is rather an unfavourable branch, because the destruction is more entire, from the more combustible nature of the material; the evidence left does not enable us to check the design of the trader as it would with iron or metal goods, where we get the articles remaining, in some shape or other.

5530. Have you frequently found fires occur in shops where the shops are below and the dwelling houses above?—Not so frequently as where the shops stand alone.

5531. So that no person can give warning?—Precisely.

5532. The destruction would be greater in that case?—Just so. I can say most confidently that a very large proportion of the fires are not accidental in character, and that they are followed by most fraudulent claims. I should say that from 50 to 75 p.c. of the fires are not accidental: not clearly proved to be accidental; they are not straightforward. It is a matter of pleasure to us, knowing that the offices want to pay what is fair and right—it is a matter of relief from the monotony and discomfort of having to be the judges of other men (as the public think)—to be able to write a certificate to say, "For the most part this case seems straightforward and clear."

5533. But you would hardly say, would you, that the majority of cases were suspicious?—In a very large proportion of the cases I should say that they were suspicious; that is to say, they are involved in such mystery that, with all our accumulating experience (for I have had this matter under my own care for 12 or 14 years), and with all the tests that every add. case gives us, we cannot get at what we want. Every board of directors expects from us something like a satisfactory account of the origin and general characteristics of a fire, and frequently we are obliged to give that up in despair. . . .

5539. Do you know of any cases of culpable negligence?—One of my recent cases, perhaps; but that was rather a case of intentional fire than anything else, and the ground is delicate, as that case is under investigation at the present moment. A great many of the most unsatisfactory fires arise among German and Polish Jews. They have a kind of cunning about them. They get the actual insurer out of the way.

5540. Have you ever found in any of these cases that the policy was burnt?—Very seldom. . . .

5544. Taking into consideration what occurred at Swansea [FIRE PREVENTION], do you think, if a legal investigation into the cause of every fire was adopted throughout the country, it would have the effect of reducing the number of fires?—Most certainly, it would have the effect of deterring people beforehand; but I could not say that in every instance we should get at the cause of a fire any more than we can now.

5550. If there was any properly appointed officer for investigating the cause of fires, who had power to examine witnesses on oath, do you think that that would have a good effect?—I am perfectly confident that it would have a good effect in getting at the evidence, which we cannot do now. . . .

5553. Have you ever found that where there has been a fire in a particular town, and a person has received a large sum of money for the loss, very shortly afterwards there was a succession of fires?—Yes; we have had 2 or 3 or 4 at a time. . . .

5563. I may add with regard to any Court to be appointed to investigate the causes of fires, that it should in my opinion be quite distinct from all questions relating to the ins. offices.

DANIEL, JAMES, was Sec. of *Commercial and General* in 1849.

DANIEL, J. L., Sec. *Lond. and Provincial Marine* since its estab. in 1861.

DANIELS, E., was Sec. of *United Kingdom Mut Annu.* in 1850. From 1852 to 1856 he was Resident Director of *Phoenix Life*.

DANIELS, JAMES, was Act. and Sec. of *Lond. and Westminster Mut. Life* in 1844.

DANINOS, S. ALESSANDRO, Sec. Gen. of the *Riunione Adriatica di Sicurtà* in Trieste. Submitted to the Inst. of Actuaries in 1852 a paper [vol. iii. p. 121], *An Account of the Ins. Cos. in Austria*. From this we have quoted largely in our art. AUSTRIA. See also ITALY.

DANISH CODE.—See DENMARK.

DANISM (from the Greek, a loan).—The act of lending money on usury.

DANSON, JNO. TOWNE, Barrister-at-Law, and Underwriter to the *Thames and Mersey Marine* in Liverpool, of which Co. he was one of the founders. Mr. Danson has been an active contributor to statistical and marine ins. literature; and has also written upon several subjects outside the scope of our present purpose.

In 1848 he read before the Statis. So. of Lond. *A contribution towards an investigation of the changes which have taken place in the condition of the people of the U.K. during the 8 years extending from the harvest of 1839 to the harvest of 1847; and an attempt to develop the connexion (if any) between the changes observed and the variations occurring during the same period in the prices of the most necessary articles of food* [Statis. Journ. vol. ix. p. 101]. This art. was re-pub. in the *Annuaire de l'Economie Politique* of Paris. [FOOD.]

In 1849 he read before the Statis. Sec. of the Brit. Asso. a paper, *On the progress of emigration from the U.K. during the last 30 years, with reference to the growth of the pop. during the same period* [POP.]; and on the same occasion a further paper, *On the fluctuations of the ann. supply and average price of Corn in France during the last 70 years, considered with particular reference to the political periods of 1792, 1814, 1830, and 1848*. [FOOD.]

In 1854 he read before the Brit. Asso. a paper, *On the current price and the cost price of Corn in England during the last 10 years, as illustrating the value of agricultural statistics*. [FOOD.]

In 1857 he read a paper before the Brit. Asso., *On the Ages of the Pop. in Liverpool and Manchester*. [POP.]

In 1859 he read before the Social Science Congress a paper, *On the method and the range of statistical inquiry, as applied to the promotion of Social Science*. [STATISTICS.]

In 1859 also he read before the Statis. So. a paper, *Propositions and inferences with statistical notes, touching the provision of country dwellings for town labourers, and in particular for those of the town of Liverpool*. [IMPROVED DWELLINGS.]

Again, in 1859, he pub. a pamph., *Reasons for estab. a Marine Ins. Co. in Liverpool* [THAMES AND MERSEY MARINE INS. CO.]

In 1860 he pub. *The law of collisions at sea, where foreign vessels are concerned*. The substance of this pamph. was delivered in the form of a paper before the Social Science Congress, 1859. [COLLISIONS AT SEA.]

In 1862 he read before the Statis. So. a paper, *Statis. Obs. relative to the growth of the human body (males) in height and weight from 18 to 30 years of age, as illustrated by the Records of the Borough Gaol of Liverpool* [Statis. Journ. vol. xxv. p. 20]. [HUMAN BODY.]

In 1866 he pub. in pamph. form an art. which orig. appeared in the *Shipping and Mercantile Gazette*, *The New Marine Ins. Cos.* [MARINE INS., 1866.]

In 1869 he pub. in pamph. form, *Fettison and General Average: On the Judgment in Dickinson and others v. Jardine and others*, delivered in the Court of Common Pleas at Westminster, 28th May, 1868. [This orig. appeared as an art. in the *Law Mag.* and *Law Review*, Feb. 1869.]

In 1871 he pub. *Notes on the pilotage of the port of Liverpool*. This pamph. contains an able summary of the evidence given before a Select Committee of the House of Commons on Pilotage, which sat in that same year, and before which Mr. Danson gave evidence, as Chairman of the Liverpool Underwriters Asso.

In Feb. 1872, he pub. in pamph. form: *Marine Ins.—Of the relation of the bill of lading to the pol.* The substance of this had previously appeared in the *Shipping Gazette*.

In the same month, *Eastern trade bill of lading: Report of the Committee of Underwriters appointed at a meeting held at Lloyds 21st Feb. 1872*. This Rep. was understood to be from the pen of Mr. Danson.

In 1872 also he pub. a pamph.: *About "Lloyds."* This attracted a good deal of attention. It was replied to in the *Review*, which art. was afterwards reprinted in the form of a pamph., *More "About Lloyds."* [LLOYDS.] [MARINE INS., HIST. OF.]

In 1873 he pub. a pamph., *The Underwriting of 1872*. This pamph.—from which we quote in other parts of this work—has passed through 3 eds. in England; and has been translated into French and German.

Mr. Danson is a well-informed, able, and energetic writer.

DANTZIC.—A commercial port on the Baltic, belonging to Germany. The city is said to have been founded by Waldemar I. in 1165; but some authorities give it an earlier existence by two centuries. By an inundation here 9th April, 1829, owing to the Vistula breaking through its dykes, 10,000 head of cattle and 4000 houses were destroyed, whilst a vast number of lives were lost.

DANTZIC, MARINE ORDIN. OF.—We have seen reference made to such an Ordin. under date 1696, but we have never been able to meet with the Ordin. itself, and we are, therefore, inclined to adopt the view of Mr. Reddie, as follows:

The port of Dantzic was frequented in the 13th century by the seafaring people of Lubeck, who there obtained privileges in the years 1263 and 1288, and this led to the adoption of the laws of the latter city. In 1455 a stat. was enacted, of which maritime law forms a very small part. The defects of this stat., although revised in 1457, required further revision in 1573 or 1579, and again in 1597, pub. in 1599. This last revised stat. refers to the Hanseatic Ordin. of 1591, and constitutes the *PLEBISCITA GEDANENSIA*, of which Kurieke cites almost all the art. in his Commentary on the Hanseatic Ordin., or Recessus of 1614. As the muniments of the maritime law of Dantzic were thus so limited, it is very prob. that the magistrates conformed in their judgments to the compilation of Wisby. And such seems to have been the maritime law of Dantzic while it remained a free city, under the protection of Poland, until, in 1793, it passed under the dominion of Prussia. [HANSEATIC MARINE ORDIN.] [KONIGSBERG, MARINE ORDIN. OF.] [LUBECK, MARINE ORDIN. OF.] [POLAND] [PRUSSIA, MARINE ORDIN. OF.] [WISBY, LAWS OF.]

DARIEN EXPEDITIONS.—The three expeditions under the Colonization scheme of Wm. Paterson, founder of the Bank of England, sailed from Scotland in the years 1698 and 1699. These formed the subject of innumerable *INS. WAGERS*, as to how many of those who sailed would ultimately reach their destination, etc., etc.

DARK AGES.—A term applied to a period of time comprising about 1000 years—from the invasion of France by Clovis, A.D. 486, to that of Naples by Charles VIII., 1495. This period is more appropriately called by Hallam and others the “Middle Ages.” Some of the *Ins. Ordin.* of the latter portion of the period afford no evidence of “darkness.”

DARLING, WILLIAM LINDSEY, was Sec. of the *National of Ireland*, from its formation, down to 1826, when he died.

DARLINGTON MARINE ASSU. Co.—Founded in Darlington in 1847, on the mut. principle. The promoters were all residents in the neighbourhood. In 1852 the asso. ceased to carry on bus. We have a note of another *Darlington Marine* being founded in 1849, but we assume this is an error.

DARNING THE WATER.—A term applied to the action of a fleet cruising to and fro before a blockaded port.—*Smyth*.

DARSENA.—An inner harbour or wet dock in the Mediterranean.

DARTMOUTH MUTUAL MARINE.—Founded at Dartmouth in 1868, the liability of the members being limited by guarantee.

DARY, MICHAEL PHILOMATH, pub. in 1669: *Dary's Miscellanies: being for the most part a brief collection of mathematical theorems from divers authors upon these following subjects.*

It is said, on authority indorsed by De Morgan, that all that was new in Dr. John Newton's *Scale of Int.* pub. 1668, “was an unacknowledged communication from Michael Dary.” And De Morgan himself speaks of Dary as “a writer who deserves to be rescued from the utter oblivion into which he has fallen”; and he then gives us the following details:

Michael Dary turns up in 1663 as a correspondent of Collins, being then a gauger at Bristol, by Collins's interest, as he intimates. He appears with a ready knowledge of the higher mathematics—of indivisibles, for example. By 1673 we find him in Lond., “very poor and void of employment,” and then seeking, without success, for what appears to have been the mastership of the Royal Mathematical School at Christ's Hospital, with a testimonial from Newton, and the good offices of Collins. But he had obtained, a month or two before, the post of Gunner in the Tower; and in 1677 he is described as a tobacco-cutter. Wallis calls him “Dary the tobacco-cutter, a knowing man in algebra.”

In 1677 he pub.: *Interest Epitomized, both Compound and Simple: very useful for every one that lendeth or borroweth; and for purchasing and selling of annu. or pensions, and leases in reversion. Whereunto is added, a short appendix for the solution of affected equations in numbers by approachment; performed by logarithms.*

Dary condemned the method used by former authors, in computing the present value of annu. at simple int., and proposed the use of compound int., which has since been invariably employed.

This work contains a theorem which the author had previously sent to Sir Isaac Newton, which, De Morgan says, is now one of considerable importance in the Calculus of Functions, “though I am not aware that it has ever been attributed to its first discoverer.” [NEWTON, JOHN, M.A., etc.]

For further details, see a paper by Prof. De Morgan in *Assu. Mag.* vol. viii.: *On the Determination of the Rate of Int. of an Annu.*

DASE, ZACHARIAS, pub. in Vienna in 1850, a *Table of Natural Logarithms from 1 to 10,500 carried to 7 places of decimals.* In this same year Herr Dase visited Lond., and gave some of the most wonderful proofs of his extraordinary powers of mental calculation and memory. There can be no doubt (says Mr. Willich) that he could mentally extract the square root of 100 figures in less than one hour; and it was well authenticated that he had in Germany undertaken and succeeded in mentally obtaining the result of 100 figures multiplied by 100 figures. We have not heard of Herr Dase for some years now.

DATA (from the Lat., *things given*).—Truths or premisses given or admitted, from which to

deduce conclusions ; the facts from which an inference is drawn ; the materials or recorded obs. upon which mathematical calculations are based.

In vol. ii. of *Assu. Mag.*, p. 294, there is a letter from "Verus" : *On the desirableness of availing ourselves of the best existing data when such as are perfect cannot be obtained.* The author says :

The duty of an actuary frequently calls for the exercise of his talents in cases where the data on which his conclusions must rest are neither "exhaustive" nor "exclusive"; and were he to abstain from making the most he can out of the elements which may be within his reach, and refuse to risk his professional reputation, unless he could command the full information which might be necessary to exhaust his subject, the basis of future improvement would often be lost, and another generation might have to come in our place before a properly-registered experience would furnish the needful materials. . . . No doubt an act. might say that he could give no opinion on such insufficient data, and so save himself from the charge of having given an erroneous decision ; but the object of my remarks is to point out that numerous instances occur in which actuaries not only may, but ought to, act on very imperfect data ; not indeed with the view of estab. their own individual character for accuracy, but with the far higher aim of promoting the advancement of science, by giving the best foundation they can from which to proceed when add. information shall have been obtained. . .

The subject of extra rates for foreign climates has hitherto been confessedly one in which the offices have had nothing like estab. principles to guide them ; and it is prob. the general opinion that we have at present no data that can be held at all sufficient for the construction of a correct T. of such rates. But it is not less the duty of the act. to take the materials he has, and to make the best use he can of them, thereby forming a rule for his guidance at present, besides contributing a most valuable item in any future investigations. *To proceed upon defective and insufficient data, and to give forth the result as a final certain truth, must be held as indicating a want of candour or discrimination ;* but to produce from the best materials that are extant the natural deductions which these are fitted to afford, *and to admit the deficiency and imperfection which may attach to them,* is a work deserving the highest commendation and encouragement. The act. who would refuse to assist in such an attempt, because his labour might afterwards be condemned as erroneous, must have a greater desire to estab. his own reputation for correctness, than to aid in the promotion of science. It may be averred without fear of contradiction, that the most useful labour of any act. who aspires to the dignified name of a philosopher, must be exercised in the field of unexplored truths, when, perhaps, a distant approximation to what shall ultimately be discovered is all that can be arrived at ; and yet that distant approximation may be the means of estab. many most valuable and important propositions which might otherwise remain unsolved.

In 1853 Mr. E. J. Farren read before the Inst. of Act. a paper : *On the reliability of Data when tested by the conclusions to which they lead* [*Assu. Mag.* vol. iii. p. 204]. This paper takes the shape of a very well reasoned art. on the working of the Law of Mort., and will be noticed by us under that head. We may give an example of the mode of reasoning adopted by the author, as follows :

By undue subdivision of even the most perfect data, a diversity of opinions might be upheld, from an unexpected mort. of zero to one of cent. per cent. ; and thus the only method (as already more than once hinted) left us is to judge of the classification and reliability of data by looking to the conclusions to which they may lead us, and thereby avoid the representation of those ancient paradoxes as to the confusion and the reversal of ages, which no statistician of modern times can ever hope to re-estab.

In 1853, also, Mr. W. Spens read before the Inst. of Act. a paper : *On the inadequacy of existing data for determining the rate of mort. among select lives* [*Assu. Mag.* vol. iv. p. 1]. This was followed by some correspondence between Mr. Spens and Mr. Farren, which appears in the same vol., and to which we shall more particularly refer under MORT., LAW OF. We are strongly of opinion that in all cases within the range of our present inquiry, the data from which conclusions are drawn should be carefully, completely, and frankly stated. This is not only due to others who may be called upon to use the results obtained, but it is due to the cause of scientific truth. If the opinions and writings of several well-known writers on ins. topics are found to be very rarely quoted by us in these pages, *the reason is here indicated.* These writers have not, in our view, sufficiently conformed to this most essential, and, withal, most reasonable requirement.

DATE.—One of the great charms of knowledge lies in chronological exactitude. Dates were first affixed to grants and assignments in the reign of Edward I., about 1290. Previous to that the only indication of the dates lies in the knowledge of the period when the parties to the grant lived. A deed, however, is good, although it mentions no date, or has a false or impossible date, provided the real date of its delivery can be proved.

The date of a deed, pol., etc., is so far a material part of it, that an alteration of it by the holder after execution will void the instrument.

Amongst the various means by which underwriters [of marine risks] are continually liable to be deceived and imposed upon, there are none which furnish more opportunities for the exercise of *fraud*, nor is it in any respect more frequently practised, than in *concealments* and *misrepresentations* of the dates of advices and intelligence received by the ins., and of the exact time at which such dates came to their hands or knowledge.—*Weskett.*

A difference formerly existed between pol. expressed to be granted for a certain period "from the day of the date" and "from the date"—the one being considered to mean exclusive, and the other inclusive of the day, and which gave rise to the words "both inclusive"; but the distinction, it is said, is now exploded : and that as the expressions may mean the same thing, and they are of doubtful import, they must be interpreted according to the intention of the pol., to be gleaned from the whole instrument ; and as the words are those of the insurers, they ought, according to the general rule of law, to be taken most strongly against them.—Bunyon, *Law of L. Ins.*

The question of date comes up in a very forcible manner in several cases which will be noted in the present work.

DATE OF COMPLETION OF CONTRACT.—We have dealt with some of the questions which arise under this head in our art. CONSUMMATION OF CONTRACT. The cases there quoted mostly relate to fire ins. contracts.

In the case of *Kentucky Ins. Co. v. Fukes*, 1854, the facts were as follow :—The application for ins. was made to the agent of the Co. on 27th Sept., and was forwarded by him to the Co. and approved ; in evidence of which pol. was mailed to the agent on 2nd Oct. The pol. was short-term—5 years. The agent received the pol. Oct. 5, but the insured had been taken sick Sept. 29, and died Oct. 4. The agent therefore returned the pol. to the Co. During the negotiations for the pol., the Co. had agreed to take the first year's prem. in advertising, which was to continue six months, and the agent had furnished an advertisement, which was pub., but the price of it was a few cents less than the amount of the prem. It was *held*, that the contract was completed at latest on Oct. 2, when the pol. was made out ; and that if the prem. was not paid in full, it was the fault of the Co. in not furnishing sufficient advertisements.

In the case of *Philadelphia L. Ins. Co. v. American L. and Health Ins. Co.*, 1854, it was *held*, that where one Co. ins. a risk previously taken by another Co., a pol. which on the face of it purported to be for a year, but contained no statement when the year was to commence, covered a loss, which, unknown to both parties, had occurred some weeks before its date and issue. In this case the plaintiff Co. had ins. a life in a distant State for a year from Feb. 24, and the pol. gave the insured the right to continue it on further payment. The plaintiffs applied to the defendant Co. to re-ins. part of the amount. The latter knew all the facts of the case, but the pol. issued by them did not show that it was a re-ins. The Court *held*, that as the defendants knew the plaintiffs had an interest in defendant's life only for a year from Feb. 24, and as the prem. taken by them was measured by the prem. received by the plaintiffs, it must be held that it was a re-ins. or the taking of a share of the orig. risk ; and that, therefore, the year named in the pol. commenced on the 24th Feb.—two months prior to its issue.

The date of subs. of a pol. is only presumptive, and not conclusive of the facts it attests. The actual date of execution may be shown by parol evidence, though different from that which the pol. bears. Where a pol. is delivered subsequently to its date, the risk will be assumed to have taken effect from such date, no reason appearing for a different construction.

Where a proposal is made for ins. of a vessel or property at a distance, it may happen that at the time of making such application the property has actually been destroyed. It has been held in such a case that the contract was good : *both parties being ignorant of the loss*. But if the property were actually destroyed at a date prior to that at which the ins. commenced, the contract would be void, and the insured entitled to a return of the prem. A contract may be made by consent of both parties (both parties being alike uninformed of any loss) to cover such a contingency. [COMMENCEMENT OF RISK.] [CONSUMMATION OF CONTRACT.] [TERMINATION OF RISK.] [HOUR.] [YEAR.]

DATE OF PAYMENT OF PREM.—All agents should take a careful note of the date on which prem. are paid to them ; and it should be recorded in writing in such a form as is suited to future reference, as in a diary or cash book. Many and serious questions from time to time arise, especially in connexion with *Accident Ins.* and *Carriage Ins.*, and more or less with other branches of Ins. [DAYS OF GRACE.] [FORFEITURE OF POL.] [LAPSE OF POL.]

DAVENPORT, H. D., Sec. of *Sovereign Life* since 1846. Mr. Davenport, who was trained to the bus. of banking, took the man. of this co. when it was some 6 months old, and has conducted it through all the critical stages incident to young life offices, until it has now reached mature age and proportions.

DAVEY, CHARLES MATTHEWS, District Supt. for the *Briton L.* in the Eastern Counties district since 1862. He commenced his ins. career for the *Scottish Provincial*, about 1853, simply as a local agent. His capacity for a higher position very speedily developed itself. In 1859 he became Supt. of Agents for the *Unities*. Mr. Davey is held in high esteem, and deservedly so, in the district under his charge.

DAVEY, HENRY MATTHEWS, brother of the above, has also worked with great success for several of the offices named.

DAVID, C. N., PROF., Copenhagen. He contributed to the *Statist. Journ.* in 1839 [vol. ii. p. 279] : *A Notice on the last Census in Denmark*. [DENMARK.]

DAVIDSON, J. M., Sec. *Scottish Plate-Glass*.

DAVIES, GRIFFITH, F.R.S., late Act. of *Guardian*, and of *Reversionary Int. So.* Mr. Davies was born in 1788, the son of a small Welsh yeoman. He learned to read at a Sunday School ; when about seven, he went to school for five or six quarters, the terms being 2s. 6d. per quarter. Here he learned to read in English. He left and went to work in a quarry. About twelve he went to an English school opened in his native village ; but he was only there about six months ; and then went to work as a farm labourer. At fourteen he went to work in a quarry on his own account, and by seventeen had saved enough money to place himself at school again. His biographer says :

It is worth observing that although he had manifested considerable acuteness and ingenuity in the manufacture of various articles of ornament and utility, it had never before been discovered that he had a capability or liking for figures in any way whatever ; but in three months' time he was enabled

to go through an elementary system of arithmetic, and made considerable progress in spelling, reading, and writing the English language, although the principles of grammar were as yet entirely unknown to him. *On his return to the quarry at the expiration of the three months, he became fully conscious that he possessed some power which he was before unconscious of, and which was continually becoming developed.* Every moment now that he could spare, he might be seen with his iron pen covering some of the slates which he had to manufacture with arithmetical calculations; and no doubt by this means he made considerable progress in acquiring that expertness and dexterity in computations which in after-life proved so useful to him.

His desire was now to rise above manual labour, and he came to London in September, 1809—then nine days' sail from Carnarvon. With some difficulty he obtained a situation as usher in a school; after many changes, and some adversity, at one period intensified into actual poverty, he became mathematical master; and in 1811 we find him master on his own account in a schoolroom, "at a very low weekly rent, in James Street, Old Street." In 1812 he took a house in Lizard Street, Bartholomew Square; and he had joined, and studied at, the Mathematical So. He prepared a Key to *Bonnycastle's Trigonometry*; but before this Key could be printed, a 2nd ed. of the principal work was pub., omitting a problem to the solution of which he had given much time and attention, and being altered in certain other respects. He was too poor at the time to purchase this 2nd ed., and had to exchange some of his much-loved and much-needed books for it. He re-wrote his Key, which was pub. in 1814:

Although the pub. of this work was of but little pecuniary advantage to him, still it answered the purpose well in bringing his name before the public, and estab. his character as a mathematician. Soon after this, he began to receive private pupils; and amongst the first of these was a gentleman connected with an assu. office, who, being desirous of studying the theory of life assu., was recommended by a Mr. Crossley, the then President of the Mathematical So., to Mr. Davies, as a person likely to be able to give him instruction. *This was a time when Mr. Davies had no knowledge whatever, either theoretical or practical, of the subject of life assu.;* but he set his pupil to learn algebra, whilst he procured the necessary books, and prepared himself to give lessons on life annu. and assu.; and by the time the pupil had gone through a limited course of pure mathematics, more particularly algebraical equations, the master was quite conversant with the subject of annu. and assu., having concentrated his whole force for a time on that one point.

Other pupils followed, among them the lamented Sir John Franklin, who desired to perfect himself in the higher branches of the science of navigation. Mr. Davies' prospects now began to brighten; and he not only gave instruction to several gentlemen connected with ins. asso., but he was even employed to do work for some of the offices. He introduced himself to Mr. Wm. Morgan, the then Act. of the *Equitable*, who furnished him with a certificate of actuarial competency. He was unsuccessful in several attempts to obtain the appointment of act. In 1820 he received the large silver medal of the So. of Arts, for a most ingenious sun-dial he had some time previously constructed. The turning-point in his life was now at hand.

About the beginning of 1821, Mr. Davies gave lessons to a gentleman engaged in a life office, but who was contemplating becoming an officer in the *Guardian*, then about to be founded. Mr. Davies was invited to attend and give his advice and assistance to the projectors of the proposed co. at their preliminary meetings, to discuss and decide upon the nature of its constitution. He was also engaged to construct the requisite T. About the close of 1823, Mr. Davies was appointed Act. of the *Guardian*, which position he occupied down to his death.

In this same year, 1823, the *Reversionary Int. So.* was estab. For this Co. Mr. Davies constructed many elaborate and useful T. It was in the first of his reports to the founders of that inst. that he announced he had "ascertained upon indubitable evidence, that a diminution had taken place in the mort. of Great Britain during the last 100 years." [MORT. OBS.]

In 1825 Mr. Davies pub.: *Tables of Life Contingencies, containing the rate of mort. among the members of the Equitable So., and the values of L. annu., reversions, etc., computed therefrom; together with a more extensive scale of premiums for L. assu., deduced from the Northampton rate of mort., than any hitherto pub., and the progressive values of L. policies. The whole carefully calculated, arranged in a new form, and illustrated by practical examples.*

This work, which has long been out of print, and is very scarce, was to be followed by "a more extensive work," containing "a new theory of the doctrine of annu. and assu." How it was that this preliminary work, so to speak, came to be pub., we are informed by Mr. Davies' biographer:

Towards the close of the year 1825, Mr. Davies casually heard that the celebrated Mr. Charles Babbage was conducting through the press a work on L. annu., containing a T. of mort. deduced from the experience of the *Equitable*; and as he considered a T., deduced by himself from the same source, one of the leading features of his own work, which he had no prospect of completing for some time, he immediately had an extra number of the tables comprised in his intended work printed off, to which he prefixed a few pages of practical examples, and a short explanation of his new columnar method of computing the values of annu. and assu., which he considered both an improvement and extension of *Barrett's method*, and pub. them in the shape of a tract on Life Contin. in the winter of 1825-6, before Mr. Babbage's work made its appearance.

The claims of Mr. Davies in regard to the columnar plan of constructing mort. T. we have already discussed under COLUMNAR METHOD.

Not only had Mr. Davies' fame as an act. now become admitted at home, but it appears to have become more widely known. "References," we are told, "were made to him

from various assu. and annu. sos. in England, Scotland, Ireland, America, and the continent of Europe. In 1829 the directors of the late East India Co., "wishing to have the state of the Bombay military fund investigated and reported on, submitted the whole of the documents concerning it to the attention of Mr. Davies, who made elaborate investigations into its present state and future prospects." From this period up to 1851 Mr. Davies was very constantly consulted regarding the various Indian funds. He wrote, says his biographer, "not less than 9 reports on the funds in Bombay; 6 on those in Madras; and 5 on those estab. in Bengal"; each of such reports containing extensive T. grounded on investigations into the contin. of life, death, marriage, and fecundity, found to prevail in them. "He was also engaged from time to time for the Bank of England."

We next learn of an incident alike creditable to both persons concerned:

In the year 1831 Mr. Benjamin Gompertz, formerly of the *Alliance L. Assu. So.*, who had been Mr. Davies' rival candidate for three several appointments as act., invited Mr. Davies to accompany him to a meeting of the Royal So., of which Mr. Gompertz had been a respected member for many years; and soon after, on the personal recommendation of Mr. Gompertz, Mr. Davies was elected a Fellow of that hon. So. Mr. Davies in after-life used to speak in the most unqualified terms of the generous disposition and kindness of Mr. Gompertz,—the more remarkable after the rivalry which had so frequently occurred between them.

From about 1847 onwards Mr. Davies suffered from a series of attacks of bronchitis. In 1855 he was seized with a paralytic stroke, and died on the 21st March in that year, "after several weeks of intense suffering," aged 67. "Thus" (says his biographer) "ended a career which will ever be memorable as connected with the mathematics of L. assu., and which affords another remarkable instance of the successful pursuit of knowledge under difficulties and disadvantages of no ordinary description."

In this same year Mr. Thomas Barlow, of the *Metropolitan L.*, a nephew of Mr. Davies, contributed to the *Assu. Mag.* [vol. v. p. 337] an exceedingly well written memoir of his uncle, from which we have borrowed many of the preceding facts.

In 1856, the year following Mr. Davies' death, his executors pub. *Treatise on Annuities, with numerous T. based on the experience of the Equitable So. and on the Northampton rate of mort.*, accompanied by the following explanation:

For various reasons this treatise as orig. designed was never completed; nevertheless, so much of it as was written has been in print since the year 1825, and many copies have from time to time been disposed of by the author. . . . It appears that the introductory obs. were either never completed, or, if finished, portions must have been destroyed, as the whole of the proof-sheets struck off are given in a bound copy of the work which Mr. Davies had; but the chapter is unfinished, and it has been judged better to leave this part untouched, rather than add any fresh matter to it, although a few pages are wanting to complete the introduction and make the numbers of the pages run consecutively.

We shall have occasion to refer to Mr. Davies and his labours in many parts of the present work.

In 1869 Mr. Griffith Davies, Act. of the *Law Life*, submitted to the *Assu. Mag.* [vol. xv. p. 138] a contribution: *On the Value of Reversionary Life Interests, by the late Griffith Davies, Esq., F.R.S.* The paper is entirely of a scientific character.

DAVIES, GRIFFITH, nephew of the preceding, and in his younger days intimately associated with him in his actuarial labours, is Act. of the *Law Life*, which position he has occupied since 1869. Mr. Davies entered that office as a junior in 1842, and so was trained to the bus. there. Many years since Mr. Davies compiled a work called the *Actuaries' Assistant, containing Tables of Annu. and Assu. by the Northampton 3 p.c. T. and some others on Ins., Annu., etc.* This work has never been pub. but remains in MS., in the author's possession. Some of the T. it contains have since been pub. by other hands.

Mr. Davies has been Consulting Act. of *Provincial (Welsh) Ins. Co.* since its formation.

In 1869 he contributed to the *Assu. Mag.* a paper, *On the Value of Reversionary Life Interests, by the late Griffith Davies, Esq., F.R.S.*

DAVIES' TABLE OF MORT.—See *EQUITABLE SO. EXPERIENCE TABLES.*

DAVIES, W., Joint Sec. of *Brit. Imperial* and of *Brit. National* since the estab. of those cos.

DAVIS, H. H., Truro, Cornwall, Agent for the *Star Life* and *Manchester Fire*, for which cos. he had over a series of years transacted a considerable bus.

DAVIS, JOHN, was for some years Sec. of *Coal Trade Mut.*, and *Coal Trade Eligible*—Marine Ins. Asso. located at South Shields.

DAVIS, WILLIAM, contributed to the *Assu. Mag.* in 1861, a T. of the D, N, and S, cols., computed on the *COLUMNAR METHOD* from Dr. Farr's *Healthy Life T.*, "to enable act. to compare it with other T." [HEALTHY LIFE T.]

DAVIS, WILLIAM BARRETT, Computer. At the *Brit. Asso. Meeting*, 1866, Mr. H. J. S. Smith read a paper, *On the large prime number calculated by Mr. Barrett Davis.* And at the *Brit. Asso. Meeting*, 1867, "a list of 5500 prime numbers" was submitted by Mr. Davis.

DAVISON, GEORGE, was Man. of *United Kingdom Horse and Cattle Ins. Co.*, 1849.

DAVY JONES'S LOCKER.—The ocean; the common receptacle for all things thrown overboard; it is a phrase for death, or the other world, when speaking of a person who has been buried at sea.—*Smyth.*

DAVY'S LAMP.—A lamp frame surrounded by a cage of wire gauze, invented by Sir Humphry Davy for the protection of the miner when surrounded by explosive gases. It

is constructed on the principle that ignited gas or flame is extinguished by contact with a large surface of a good conductor of heat, as copper or iron. Davy's lamp is safe so long as the explosive gases remain tranquil.—*Hoblyn.*

DAWES, WILLIAM, was Sec. of the *Rye Mut. Marine*.

DAWSON, J., was Act. and Sec. of *Mariners and Gen. L.*, from its commencement down to 1844.

DAY.—Popularly that period of the circuit of the earth round the sun which is light; but really the entire 24 hours. In law there is no division of a day, unless indeed any division be necessary for the purpose of justice. A person owing money to be paid on a certain day, discharges the obligation if he pay the money before 12 o'clock at night. [DATE.]

DAY, ARCHIBALD, Sec. of Lond. Branch of *Scottish Widows' Fund* since 1870. Mr. Day entered the *Royal Exchange* in 1847, and worked his way through various departments. In 1855 he was appointed Act. and Sec. of *Lond. and Provincial Law*, which position he occupied until he received his present appointment.

Mr. Day has contributed some valuable papers to the *Assu. Mag.*, of which the following is a summary.

In 1859 [vol. viii. p. 127], *On the Determination of the Rates of Prem. for Assu. against Issue.* [ISSUE, INS. AGAINST.]

In 1860 [vol. viii. p. 326], *On the Purchase of Life Assu. Pol. as an Investment.* [INS. INVESTMENTS.]

In 1861 (jointly with Mr. A. H. Bailey), *On the Rate of Mort. prevailing amongst the Families of the Peerage during the 19th Century* [vol. ix. p. 305]. [OCCUPATIONS.] [PEERAGE.]

In 1862 [vol. x. p. 181], *On the Statistics of First and Subsequent Marriages among Families of the Peerage, considered specially with reference to the Calculation of Premis. for Assu. against Issue.* [ISSUE, INS. AGAINST.] [OCCUPATIONS.] [PEERAGE.]

In 1865 [vol. xii. p. 185], *On the Statistics of Second Marriages among the Families of the Peerage.* [ISSUE, INS. AGAINST.] [PEERAGE.]

It will be seen that Mr. Day has marked out for himself not only a special but an exceedingly interesting branch of inquiry. Mr. Day has filled the office of Hon. Sec. to the Inst. of Act., and is now one of the Vice-Presidents.

DAYS OF GRACE.—These are the days allowed, first by courtesy, next by custom, and now by positive contract, within which premis. on contracts of ins. intended to be renewed (subject in some cases to notice from the insurers to the insured declining to renew the contract) must be paid. The happy expression "days of grace" is of comparatively modern application; prob. derived from "days of prompt," in relation to certain commercial contracts. The number of days varies in different branches of ins. bus.; these we proceed to note: and also the various decisions, etc., affecting them.

Fire Ins.—The origin of the "days of grace" in F. ins. may be traced backwards for a considerable period. The custom may have originated out of the provisions of the F. Ins. Duty Act—22 Geo. III. c. 48 (1782); or the Act may have followed the custom. The latter is far the more prob. Sec. 12 of this measure enacts:

That the person or persons who for the time being shall be entitled to the benefit of any such pol. shall at the end of the year for which such pol. shall be granted, or within 15 days thereafter, and so at the end of every subsequent year, during the continuance of such pol., or within 15 days thereafter, pay or cause to be paid to the insurer or insurers in such pol. one year's duty in respect of this Act, at the rate aforesaid; and such insurer or insurers shall on every such payment give a printed or written receipt for the said duty to the person or persons paying the same; and in case of any default of payment of such year's duty within the time aforesaid and before any loss shall be sustained, the pol. of ins. in respect of which such duty shall accrue shall so far as regards the insured be void to all intents and purposes whatsoever.

While the provisions of this Act were in force, as they were until the entire repeal of the duty in 1869, it was clear that if the premis. were not paid within the 15 days, and a fire occurred, the acceptance of the prem. by the office in ignorance of the disaster or otherwise could not revive the pol. If the insured were aware of the loss, and did not disclose it, the concealment would be a fraud; and upon the general principles of ins. there would be no contract. If neither party were aware of the fire, unless there was an express agreement that the ins. should date back, by the insertion of words equivalent to "lost or not lost" in a marine pol., it would be open to the office to contend that the acceptance of the prem., being for renewal of the ins., assumed that the subject of the ins. continued to exist.—*Bunyon.*

In the case of *Tarleton v. Stainsforth*, which came before our Courts in 1794 and again in 1796, the facts were as follow: The plaintiffs had ins. in the *Liverpool F. Office*, by pol. dated 10th Dec. 1788, which, after reciting that the plaintiffs had paid £7 10s. for 6 months' ins., declared that so long as the plaintiffs should pay the sum of £7 10s. at the times and places named, and the trustees or acting members of the So. should agree to accept the same, the funds of the Co. should be liable to pay the plaintiffs such damage and loss as they should suffer by fire, not exceeding £6000, according to the exact tenor of their printed proposals. The second half-year's prem. was paid, and carried the ins. up to 10th Dec. 1789, exclusive of the days of grace. The fire happened on the 11th Dec.; and before the expiration of 15 days from the 10th Dec. the renewal prem. was tendered to the defendants, but refused. The defendants pleaded (*inter alia*) that the

plaintiffs did not pay the prem. before 10th Dec. as they ought to have done, in order to have continued the pol. to the time when the loss happened; and that the renewal prem. was not tendered until after the 10th Dec. The case came before the Court on a demurrer to these pleas. The Court gave judgment for the defendants. Lord Kenyon said :

It is admitted that the ins. did not extend to half a year and 15 days, and that completely puts an end to the whole case. The plaintiffs stipulated to pay £7 10s. half-yearly on 10th June and 10th Dec., and that they would, *as long as the man agreed to accept the same*, make their payments within 15 days after the time limited; *but no ins. is to take place until the prem. be actually paid*. The continuation of the term, therefore, depends on two circumstances, which may both occur, namely, that the insured should pay the £7 10s., and that the insurers should agree to accept that sum. Barely stating these facts is sufficient to show that the plaintiffs are not entitled to recover.

The judgment was afterwards affirmed in the Exchequer Chamber.

In consequence of this decision, much alarm was felt by the public : to allay which most of the F. offices issued advertisements declaring their practice in regard to the point in question—the expression “days of grace” was not then employed. The advertisement issued by the *Sun F. Office* was as follows :

Sun Fire Office, 10th July, 1794.—In consequence of several applications, the man. of this office do hereby inform the public that all persons ins. in this office by pol. taken out for one year, or for a longer term, are, and have always been, considered by the man. as ins. for 15 days beyond the time of the expiration of their pol.; but this allowance of 15 days does not extend to pol. for shorter periods, which cease at 6 o'clock in the evening of the day of the expiration of the time mentioned in the notices.—Hugh Watts, Sec.

The printed “proposals” of the Co., which then formed the conditions of the ins., contained a corresponding provision in these terms :

On bespeaking pol. all persons are to make a deposit for the pol., stamps, duty, and mark, and shall pay the prem. to the next quarter-day, and from thence for one year more at least, and shall, as long as the man. agree to accept the same, make all future payments ann. at the office within 15 days after the day limited by their respective pol., upon forfeiture of the benefit thereof; and no ins. is to take effect till the prem. be actually paid by the insured, his, her, or their agent or agents.

There arose in 1805 the case of *Salim v. James and others* [Man. of *Sun F. Office*], in which the Co. was sued under one of its pol. issued in pursuance of the foregoing provisions; and it was held (by Lord Ellenborough) that the effect of the advertisement and condition together was to give the parties an option during 15 days to continue the contract or not : with this advantage on the part of the insured, that if a fire happened during the 15 days, though he had not paid his prem., the office should not after such loss determine the contract; but that this did not deprive the Co. of the power of so doing at the end of the term by making their option within a reasonable time before the end of the period for which the ins. was effected, as they had done in this particular instance. Further, that when the prem. was received, the effect of it was to give the insured an ins. for another year—to be computed from the end of the preceding year, and not of the 15 days.

The principle involved in this decision has since been upheld in several cases upon life and upon accident ins. pol.

In the case of *McDowell v. Carr*, before the Irish Courts in 1833, a pol. for a year had been granted, with a condition that “no pol. will be considered valid for more than 15 days after the expiration of the period limited therein, unless the prem.,” etc., are paid. And in case of ins. for a less period than a year, they “will terminate at 6 o'clock in the evening of the day specified, with the allowance of 15 days :”—Held, to be in effect an ins. for 1 year and 15 days.

Mr. Flanders, in his excellent *Treatise on the Law of F. Ins.* [in the U.S.], says :

Where there is a proviso or condition giving a certain number of days' grace for the payment of the prem., *these alone do not keep alive the pol.* An express stipulation is necessary that the ins. shall be continued, and the property covered by the pol. until the expiration of the days of grace.

It may be taken as settled law in Gt. Brit. (subject always to modification by special contract between the parties, *i.e.* special conditions in the pol.), that the days of grace are *only in view of renewal of the pol.* If the office has declined to renew, on the ground of rates, or from any other cause, or if the insured has in any manner signified his intention *not to renew*, the days of grace are waived, as their purpose has ceased to exist. *Days of grace do not apply to short-term F. pol.*

Marine.—Under contracts of marine ins. days of grace do not apply—by far the greater proportion of such contracts being for voyages only; but in term pol. the rule is the same. This in the case of *Meretony v. Dunlop*, 1783, where a ship was ins. for 6 months, and 3 days before the expiration of the term she received an injury from which she was afterwards lost, but by pumping had been kept afloat until the pol. expired, a verdict was given by direction of Lord Mansfield against the claim, and this was sustained on appeal.

Life Ins.—Among the earlier L. asso. the practice respecting “days of grace” seems to have been very lax. In the *Amicable So.* the period extended over something like 3 months before any forfeiture really occurred. No especial attention appears to have been drawn to the subject in a legal point of view, until early in the present century.

In the case of *Want v. Blunt*, 1810, where a life was ins. in a L. ins. asso. for the benefit of widows and female relations, under a pol. for an annu. payable to the widow of

the member, in consideration of a quarterly prem. to be paid *during his life*; the so. covenanting with him and his executors that if he should pay to their clerk the quarterly prem. on the quarter-days "during his life," and if he should also pay his proportion of the contributions which the members of the so. should "during his life" be called upon to make, in order to supply any deficiencies in their funds; then, upon proof of his death, the annu. should become payable. The rules of the so. declared that if any member neglected to pay up the quarterly prem. for 15 days after they were due, the pol. was declared to be void, unless the member—*continuing in as good health as when the pol. expired*—paid up the arrears within 6 months, and 5s. p. month extra. It was *held*, the member ins. having died, leaving a quarterly payment due at his death, that the pol. expired; and that a tender of the sum due by his executors, *though made* within 15 days after it became due, did not satisfy the requisitions of the pol. and the rules of the so., which required such payment to be made in his lifetime, "continuing in as good health as when the pol. expired."

The *Equitable So.*, apparently in consequence of this decision, passed the following bye-law under date 6th Dec. 1810:

That in case any person or persons on whose life or lives an assu. shall have been made shall die within 30 days next after the time stipulated in the pol. for the payment of the prem. due thereon, such pol., although the prem. due thereon be unpaid at the time of the decease, shall nevertheless, on the prem. being subsequently paid within 30 days next after the same became due, continue in force and be valid to all intents and purposes, in the same manner as if such prem. had been paid in the lifetime of the person or persons on whose life or lives the assu. was made.

In the case of *Acey v. Fernie* [Res. Director of Brit. Commercial], before the Courts in 1840, it was held, that the renewal prem. must be actually paid in order to keep the pol. in force; and that it was not sufficient that there was no intention to discontinue the pol., and that the office was not damnified by the delay.

In the case of the *Prince of Wales Ins. Co. v. Harding* [Official Man. of *Athenæum L.*, 1857, the facts were:—These cos. were in the habit of re-insuring each other in respect of pol. granted to third persons by the re-insured co. In the course of bus. as any prem. became due from one co. to the other, the co. entitled to the prem. gave to the co. owing it a receipt for the amount. On periodical settlements of account between the cos., the prem. due on each side were taken into account, the bal. struck and paid to the party to whom it stood. No other payments passed between the cos. A prem. being due from the *Prince of Wales Co.* to the *Athenæum Co.*, the latter gave the former a receipt for the amount. At this time the *Athenæum* was indebted to the *Prince of Wales Co.* The amount of the prem. went into the account in the usual course of bus., and at the next settlement a bal. was due from and paid by the *Athenæum* to the *Prince of Wales Co.*:—*Held*, that the prem. was paid when the receipt was given.

In the case of *Pritchard v. Merchants' and Tradesmen's Mut. Life*, which came before the Courts in 1858, the facts were as follow: The pol. was by way of re-insurance to the *United Mut. Mining Co.* (of which Pritchard was the Man. Director) in respect of a portion of a risk that Co. had taken upon a life. The orig. pol. contained a provision for 30 days' grace. An ann. prem. became due on 13th Oct. 1855. The 30 days' grace expired on 12th Nov., on which day the life ins. died. On the 14th Nov. the plaintiff sent the *Merchants' and Tradesmen's Co.* a cheque for the prem. On the following day the cheque was cashed, and a receipt sent as for "the prem. for the renewal of the pol. to Oct. 13, 1856, inclusive,"—both parties being then ignorant that the life orig. ins. was then dead:—*Held*, that the payment did not under the circumstances revive the pol. It appeared to be the view of the Court of Common Pleas, that the contract being for payment of the sum ins. on the future event of the death of the life ins., a payment of the prem. *within the 30 days, but after the death*, would not be a payment within the condition.

A great deal of attention was drawn to the subject of days of grace in consequence of this decision. Many of the offices, old as well as young, took advantage of the excitement occasioned to announce that they did admit all claims which arose during the days of grace; and Lord St. Leonards, in a Bill he brought forward about that period to amend the law of property, introduced a clause making the days of grace imperative, "just as if those days had been mentioned in the orig. pol.;" but this Bill never became law.

It must be remembered that the practice of L. Offices is not uniform regarding the "days of grace." Some offices only allow 15 days, while the majority allow 30. Some offices, which allow 30 days on ann. renewals, allow, and with reason, a much shorter period in regard to half-yearly and quarterly prem. Again, some offices are governed by the provisions of their D. of Sett.; others follow custom only, so far as custom can be deduced from such varying circumstances; while yet others are governed only by the will of the Directors and Man. as from time to time set forth in their prosp. All that can be readily relied upon in the matter is, therefore, the actual statement of each particular office regarding each particular pol. In the event of death occurring during the days of grace, the prem. not having been paid, common prudence will dictate its immediate tender or payment to the office, with notice of the death.

In the case of *Campbell v. International Life of Lond.*, which came before the U. S. Courts several years since, there was some difficulty in determining when, that is on what day, the renewal actually fell due. This was occasioned from a date in the margin differ-

ing from the date in the body of the pol. The Court gave the pol.-holder the benefit of the date most in his favour; but this caused the final day for payment to fall on a Sunday. The judgment on this point was as follows:

It appears to me, from this review of the law, that the Court is warranted in saying, that when, from accident or mut. error, the day of fulfilling an agreement falls upon Sunday, *there is enough of principle and authority to justify the party in deferring his performance to the Monday ensuing, without imposing a right or incurring a forfeiture.*

In the *European Arbitration*, Lord Westbury laid down the following rule, on the hearing of *Trustram's case*, early in his sitting (Nov. 1872):

In all cases in which prems. have become due, according to the terms of the pol., before the date of the presentation of the petition to wind up, but where the 30 days' grace allowed for payment thereof did not expire until after the date of the presentation of the petition, the pol.-holder shall be at liberty now to pay or satisfy those prems. before proof, without prejudice to the question whether the prem. shall be paid in cash or declared as a sum that must be deducted from the dividend upon proof.

This seems very equitable; but in many cases this payment of prems., under such circumstances, would be to offend against the adage of "never throw good money after bad."

In the U. S. the allowance of days of grace is not usual. On this point we cannot do better than quote the excellent work of Mr. Bliss—*The Law of Life Ins.*, etc., 1872. He says (p. 253):

The modern American pol., almost without exception, require the payment of the prem. punctually on the day named in them; and if it is not so paid, the pol. is declared to be forfeited. After that time, however, the cos. will ordinarily, as a favour, and not a right, renew the pol.—*if the insured, on a new examination, is found to be in good health.* . . . The competition for bus. in this country has led, recently, in some cases, to the intro. of the English custom; *but it is of no practical utility*, and gives room for the raising of embarrassing legal questions, which had better be avoided.

Accident Ins.—The days of grace under accident pol. are usually 10, varying slightly with the different offices.

In the case of *Simpson v. Accidental Death Ins. Co.*, 1857, it was held that the contract under the pol. was for an ins. of 12 months only—and did not extend to days of grace—although if the prem. were paid within those days, the contract would be renewed for a further period of one year from the date of the expiry of the former year; but the office had the right of declining to renew the pol.

Boiler Ins.—14 days' grace is allowed, and pol.-holders are insured during that period.

Carriage Ins.—10 days' grace, the co. holding the pol.-holder insured.

Cattle Ins.—There are no days of grace in the ordinary acceptance of the term. The co. does not enter upon the risk until a certain number of days after date of proposal, in view of avoiding ins. of animals diseased or suspected to be so. The pol. are generally for 1 year—but they expire from date of proposal. Renewals must be proposed for previous to the termination of pol., in order to the liability thereon becoming continuous.

Glass Ins.—15 days' grace are usually allowed for renewal of pol. of this class.

Hail Ins.—The risk here terminates when the crops are harvested; but the pol. may be in effect renewed, while the land remains in the same "occupation." Fresh proposals have to be sent in, stating acreage, etc.

Regarding the subject generally, it may be assumed that the Courts of Law can only construe the contract strictly on this vital point. The common equitable relief in respect of money payments does not apply; for the co. has no power of compelling payment of the prems. Neither is it material that the office may have debited its agent with the prem. on sending him the renewal receipt: unless the insured actually pays the amount; or unless the agent expressly agrees to advance the money for him,—(a dangerous practice),—and enters the prem. in his books as paid, the pol. is not in force after expiration of days of grace. This was the ruling in *Simpson v. Accidental Death*, already quoted. [FORFEITURE.] [FINES.] [RENEWALS.]

DAYS OF THE PROMPT [sometimes called Days of Courtesy].—A period allowed for settlement of commercial bargains. At public sales of merchandise, 21 days are generally allowed for the "prompt." In the adjustment of mercantile fire losses, technical questions regarding "prompt-day" are sometimes involved.

DAYS OF THE WEEK ON WHICH MOST FIRES OCCUR.—Under FIRE INS., STATISTICS OF, some curious information will be given on this subject.

DE ASSECURATIONIBUS.—The famous work of Roccus on Ins., pub. at Naples about 1655, and very constantly quoted in modern works on Marine Ins.

DE ASSECURATIONIBUS ET PROXENETICIS.—A treatise on Insurances, and Agents, and Brokers, written by the learned Stracca about 1570, and enjoying a very high reputation.

DE AVARIIS.—A work on Averages, which was pub. at the beginning of the 17th century, by Quinten Weitsen, Counsellor of the Court of Holland. The work is of high authority.

DE BONIS NON.—Of the goods of a deceased person not administered.

DE BOW, J. B. D., late Supt. of U.S. Census. He prepared in 1854 a *Statistical View of the U.S.; embracing their territory, pop.—white, free, coloured, and slave; moral and social condition; industry, property, and revenue; the detailed statistics of cities, towns, and counties; being a compendium of the 7th census, in 1850, and comparisons with the previous decennial censuses from 1790.* This work was compiled in accordance with a

resolution of the Senate dated 12th July, 1854; and 50,000 copies were ordered to be printed. [U. S., V. STATISTICS OF.]

DE BUFFON. See BUFFON, COUNT DE.

DE BURGH, WILLIAM, B.A., Barrister-at-Law, pub. in 1868, *The Elements of Maritime International Law, with a Preface of some unsettled Questions of Public Law.* The subject is treated from an international rather than from an ins. point of view, and for this reason we shall prob. have but small occasion to quote from this ably written vol. [NEUTRALITY.]

DE COMMERCII ET CAMBIO.—A learned treatise by Sigismundus Scaccia, pub. about 1620, in which it is alleged that the author set out very fully the contract of L. ins. [SCACCIA.]

DE CONTRACTIBUS MERCATORUM.—A treatise by Joannes Nider, which was included in the *Decisiones Rotæ Genuæ*, pub. 1622.

DE CORONATORE ELIGENDO.—This is the designation of the writ issued for the election of Coroner.

DE DIE IN DIEM.—From day to day.

DE DOMINIO MARIS.—The famous work of Selden, the *Dominion of the Seas*, frequently quoted in our pages. [OLERON, LAWS OF.] [SELDEN.]

DE FACTO.—In fact; opposed to *de jure*, of right.

DE FLOURENCOURT.—See FLOURENCOURT, CARL CHASSOT DE.

DE FOE, DANIEL, Author and Journalist, more universally remembered as the author of 'Robinson Crusoe.' He lived at the period when F. Ins. was passing into its first stage of development; and he is supposed by some to have had a share in founding the *Hand-in-Hand*. We have not met with any evidence which bears out this view.

In his *Essay on Projects*, dated 1697, but prob. not pub. until 1698, he embodies a "proposal of assurances," under which he includes ins. against *shipwreck*, against *fires*, *titles of land*, etc.; but he did not approve of L. Ins.! In the same Essay he also advocated *friendly sos.*, ins. for the *poor*, and *widows' funds*. Each of his suggestions will be spoken of under its proper head.

DE HISTORIA LEGUM MARITIMARUM MEDIÆ ÆVI.—The great work of Dr. Meyer on mercantile law pub. at Bremen in 1824.

DE IMPERIO MARIS.—A treatise on the Dominion of the Sea pub. by the learned Gothofred in 1637.

DE INCREMENTO.—Of increase.

DE JURE.—By right; opposed to *de facto*.

DE JURE JUDICES, DE FACTO JURATORES, RESPONDENT.—The judges answer to the law, the jury to the fact.

DE JURE LITTORIS.—A learned treatise by Shuback, Keeper of Archives of Hamburg, pub. 1751. [CUSTOM.]

DE JURE MARITIMO ET NAUTICO.—A work of considerable renown pub. by Stypman at Stralsund in 1652. [2nd ed. 1661.]

DE JURE MARITIMO ET NAVALI.—A treatise on maritime affairs pub. by Charles Molloy in 1692.

DE JURE MARITIMO ET NAVALI, LIBRI TRES.—An able work on Marine Ins. written by Loccenius, and pub. at Stockholm in 1652.

DE LA LANDE, JEROME.—A writer on mathematical subjects, resident in Paris at the commencement of the present century. In the 3rd vol. of *Montucla*, pub. in Paris in 1802, he offers some interesting comments on the annu. scheme of De Wit, regarding which he puts Hudde [whom he calls Van Hudden] in a much more prominent position than is generally assigned to him at the present day.

In 1805 he pub. in Paris, *Tables de Logarithmes*.

DE LA PLACE.—See LAPLACE, M.

DE LAUNE, THO., pub. in Lond. in 1681, *The Present State of London: or Memorials comprehending a full and succinct account of the ancient and modern state thereof.* Nicholson says this is chiefly taken from Stow's 'Survey.'

In 1690 he pub., *Angliæ Metropolis: or the present state of London, continued to the present year, by a careful hand.*

We have a suspicion that De Laune and Delaune are one and the same. If that be so, we shall meet with him again in somewhat prominent form in our hist. of F. Ins. We have had occasion to quote from each of the above works.

DE LOIS MARITIMES.—The title of the great work of M. Pardessus.

DE LUNATICO INQUIRENDO, WRIT OF.—A process issued to inquire into the condition of a person's mind.

DE MENSURA SORTIS.—The short title of De Moivre's paper on Chances, submitted to the Royal So. in 1710, and afterwards printed in the *Phil. Trans.*

DE MERE, CHEVALIER, flourished in the 17th century, and, by incidentally calling upon Pascal (in 1654) for a solution of some problems in relation to hazard at play with dice or cards, led to the investigation of the *Laws of Chance*, which afterwards became extended to the science of Probabilities. One of the problems he submitted to Pascal was the following: Two persons sit down to play on the condition that the one who first

gains three games shall be the winner of the stakes. The first having gained two games, and the second one, they agree to leave off and divide the stakes in proportion to their respective probabilities of winning: What share is each entitled to take? [CHANCES, DOCTRINE OF.]

DE MOIVRE, ABRAHAM.—A celebrated mathematician of the last century, and one of the earliest and best writers on the subject of L. Contin. Also the propounder of the famous hypothesis which bears his name, and of which we shall speak under a separate art. [DE MOIVRE'S HYPOTHESIS.] He was born at Vitri, in Champagne, in 1667, and was driven from his native country, in common with many others who rose to distinction, by the Revocation of the Edict of Nantes, 1685. When he first settled in Lond. does not appear; nor when he first turned his attention to mathematics, the study of which he had commenced in his own country and perfected in England. John Bernoulli, in a letter to Leibnitz, dated 26th April, 1710, speaks in the highest terms of De Moivre. The *Principia Mathematica* of Newton, which chance is said to have thrown in his way, soon convinced De Moivre how little he had advanced in the science he professed. This induced him to redouble his application; which was attended with a considerable degree of success; and he soon became connected with and celebrated among the first mathematicians of that period. His eminence and abilities secured for him admission into the Royal So. of England; and also into those of Berlin and Paris. By the former his merit was so well known and esteemed, that they judged him a fit person to decide the famous contest between Newton and Leibnitz concerning the invention of Fluxions.—Hutton, *Math. Dict.*

The following is an enumeration of his principal works:

1. In 1710 he submitted to the Royal So. a paper: *De Mensura Sortis, seu, de Probabilitate Eventuum in Ludis a Casu Fortuite Pendentibus*. This was printed in the *Phil. Trans.* and occupied the whole of No. 329.

2. In 1718 he pub. as an independent treatise: *The Doctrine of Chances; or a method of calculating the prob. of events at play*; which was in fact the essay of 1710 expanded into book form. This work, which was dedicated to Sir Isaac Newton, attracted a good deal of attention: those who are familiar with the hist. of that period will understand why. This work contained a section devoted to Annu. on Lives; and a few notes on Prob. 2nd ed., "fuller, clearer, and more correct than the first," and in which was contained some obs. on Life Annu., 1738; 3rd ed. 1756, after the author's death.

These works are noticed under CHANCES, DOCTRINE AND LAWS OF. The latter under BIRTHS, date 1756.

3. In 1720: *Two Letters, on the reimbursing and paying off annuities*.

4. In 1725: *Annuities upon Lives; or the valuation of Annuities upon any number of lives; and also of Reversions*. To which is added an Appendix concerning the expectation of life, and the prob. of survivorship. 2nd ed. 1743; 3rd ed. 1750; 4th ed. with tables for 3 and 3½ p.c. 1752. There is an Italian ed. of this work pub. in Milan in 1776: *La Dottrina degli Azzardi. . . de Abramo Moivre: Trasportata dall' Idioma Inglese. . . dal Padre Don Roberto Gaeta. . . sotto l'assistenza del Padre don Fontana*.

5. In 1730 he pub. *Miscellanea Analytica, de Seriebus et Quadraturis*, etc. This work contains several very elegant improvements in the then known methods of termination of series, as well as some new methods.—*De Morgan*.

6. In 1744 another paper was submitted to the Royal So., in the form of a letter to Wm. Jones, Esq., F.R.S.: *On the easiest method for calculating the value of Annu. on Lives from Tables of Obs.* This was pub. in *Phil. Trans.* of the same year, in the vols. of which, ranging from 19 to 40, will be found other papers of his, mostly on mathematical subjects.

The last three enumerated works have been spoken of by us under ANNU. ON LIVES.

It has been commonly considered that De Moivre is only to be recollected in the history of life contingencies as the proposer of the theory bearing his name, and that, as this theory has long since fallen into disuse, his labours have proved altogether nugatory. But historical justice requires that each treatise should be judged in relation to its date. Estimated by this comparison, De Moivre's forms undeniably, to a reader conversant with such matters, the most original work yet extant [on L. annu.], and must not only have very considerably aided the primary discussion, and therefore improvement of the subject, but has moreover incidentally afforded, even in the present day, one of the only two correct annuity formulæ current.—*Farren, 1844*.

A mediocrity of fortune, says Hutton, obliged him to employ his talent in this way—in giving lessons and reading public lectures for his better support. In the latter part of his life, too, he chiefly subsisted by giving answers to questions in chances, play, annuities, etc. He spent most of his time at a coffee-house in St. Martin's Lane. It is recorded that Newton himself, in the latter years of his life, used to reply to inquiries respecting mathematics: "Go to De Moivre, he knows these things better than I do."

It must have been a matter of no ordinary interest to see this venerable old man in "sublime poverty," at one part of the day doing the "oracle" alternately to duchesses and their waiting women; to lords and their valets; and to all the intermediate grades, down to the common gamblers, on matters of chance in regard to play; while at another

part of the same day he was visited by the learned of his period, and as closely pressed on points arising out of the higher branches of mathematics. He was a sort of mathematical Dr. Johnson!

In a long list of men ennobled by genius, virtue, and misfortune, who have found an asylum in England, it would be difficult to name one who has conferred more honour on his adopted country than De Moivre.—*Todhunter.*

Pope has rendered him immortal:

Who made the spider parallels design
Sure as De Moivre, without rule or line.

De Moivre died in Lond. in 1754, aged 87. [SIMPSON, THOMAS.]

DE MOIVRE'S HYPOTHESIS.—An hypothesis respecting human life formed by the preceding writer. It may be briefly expressed as follows: *Of 86 persons, 1 dies every year until all are extinct.* The remainder of 86 years at every age De Moivre called the **COMPLEMENT OF LIFE.**

This hypothesis is essentially a thing of the past; but it has played such an important part in the hist. of life contin. that it calls for some detailed notice at our hands. We propose first to explain the principle upon which it was founded, and then to give some account of the circumstances which led to its discovery.

The hypothesis consisted of the assumption that any specified number of persons born would be subsequently decreased from age to age by some uniform number of deaths. From this it was evident that as the number of deaths was supposed to be invariable, so such number *would ann. be in greater proportion to the diminishing number of survivors*, and thus consistently represent at successive ages a yearly decrease in the prob. of life.

Here is De Moivre's own account of how he was led up to his hypothesis:

Two or three years after the pub. of the first ed. of my *Doctrine of Chances*, I took the subject into consideration, and consulting Dr. Halley's T. of obs., I found that the decrements of life, for considerable intervals of time, were in arithmetical progression; for instance, out of 646 persons of 12 years of age, there remains 640 after 1 year; 634 after 2 years; 628, 622, 616, 610, 604, 598, 592, and 586 after 3, 4, 5, 6, 7, 8, 9, and 10 years respectively, the common difference of those numbers being 6. Examining afterwards other cases, I found that the decrements of life for several years were still in arithmetical progression, which may be observed from the age of 54 to the age of 71, where the difference for 17 years is constantly 10.

He then arrives at the next stage:

Now in the hypothesis of a perpetual and equable decrement of the prob. of life, to begin from a term given, there is also a perpetual, though not equable, decrement of the prob. of life when estimated from year to year, which makes it that such an hypothesis must differ the most from the T. of obs. for the 12 first years of life. But although the notion of an equable decrement of life to begin from the age of 12 and to continue through the whole extent of life, do not exactly agree with the T., yet that notion may successfully be employed in constructing a T. of the values of annu. for ages not inferior to 12, as will appear by the consequences deduced from the following problem, etc., etc.

To render such an hypothesis capable of yielding numerical results, it became necessary to select a commencing rate of mort. In order to apportion this without unduly affecting the successive durations of life among the subsequent survivors from age to age, De Moivre sought to ascertain in how many years a number of persons contemporaneously born might be presumed to become extinct.—*Farren.*

It will be desirable, at this point, to turn to what has been already stated regarding this hypothesis under **ANNU. ON LIVES, HIST. OF** (date 1725).

De Moivre's hypothesis, in its practical form, as connected with the *Breslau Table*, was, therefore, thus expressible: *of every 86 persons born, 1 is supposed to die ann. from age to age, till all are extinct.* It has been remarked that the Northampton Table very nearly represents this fact at all the middle ages.

He (De Moivre) applied the principle to discover *the expectation of life*. Thus, if it be required to find the expec. of a life of which the age is given, the rule for finding it is expressed in these few words: take half the difference between the age given and the extremity of old age, supposed at 86, and that half difference is the thing required: thus if the age be 50, then the difference between 50 and 86 being 36, whereof the half is 18, it may be concluded that 18 years is the duration which a life of 50 may justly expect.

He takes up this part of the subject again in the preface to his *Annu. upon Lives*, 1725, and says thereon:

To facilitate the computations relating to that subject [Expectation of Life], I resume an hypothesis which I had begun to introduce in the first part of this tract. It consists in supposing that the number of lives existing of any age is proportional to the number of years intercepted between the age given and the extremity of old age: thus if there be 36 lives of the age of 50, we may imagine that in the succeeding years there will remain respectively 35, 34, 33, 32, etc., till they be all extinct in the 86th year, which is supposed to be the utmost term of life. This hypothesis will appear in several respects to have some foundation in nature. 1st. As it assigns a term to human life which is very rarely exceeded. 2ndly. As it makes life more and more obnoxious to decay. 3rdly. As it has a near conformity with the table of obs. After this hypothesis has been estab., I find means to correct its conclusions by help of the Table itself, and to bring them to so near a degree of coincidence with those deduced year by year from the table, that it may be a doubt whether the difference arising from the comparison be not a balance for some inaccuracy that will still remain in the best obs.

He adds the two following important qualifications to his preceding views:

The rules delivered in this tract requiring all along that the extent of life should be considered as confined, I have thought it convenient to fix the utmost limit of it in the 86th year, whereby I have nearly conformed myself to the table of obs.; but as some exceptional consequences might perhaps

flow from too rapid an application of that principle to those years of life which border upon its extremity, it will not be improper to declare, that my meaning in fixing that term imports no more than this, viz. that the time of contracting for annu. being commonly very remote from the 80th year of the life purchased, it is not likely that any consideration will then be given for the chance of receiving the rent of that year, which will produce the very same conclusions in theory, as if the extremity of that year were never attained.

And :

Since the decrements of life may without any sensible error be supposed equal for any short interval of time, it follows that if the whole extent of life be divided into several shorter intervals, whether equal or unequal, the values of annu. for lives to be estimated from the beginning of each of these periods may easily be calculated by the preceding theorem, conformably to any tables of obs., for any rate of int.

It will naturally occur to the reader who is familiar with *Ulpian's Estimate*, already given in our art. ANNUITIES ON LIVES, whether De Moivre may not have had his attention first called to the subject by its means. We do not stay to investigate this point of origin ; and we certainly have no desire to rob De Moivre of an honour so long and by common consent awarded to him : for while all Mort. T. subsequently formed have shown that this hypothesis cannot always be relied on, still it was of great use in the early inquiries into the doctrine of life annu., as we shall presently show ; and it will ever remain a monument to the ingenuity and ability of the illustrious De Moivre.

De Moivre found some difficulty in applying his preceding hypothesis to the values of annu. on joint lives, and hence he deduced a *second hypothesis*, viz.—That the prob. of life decrease in a *geometrical* progression : or in such a manner that the *proportion* is always the same between the number of persons living at the beginning of any one year, and the number living at the next following year.

Dr. Price, in his *Essay on Mr. De Moivre's rules for calculating the values of joint lives*, says that the values of annu. on *joint lives* might have been calculated from the *first hypothesis* ; “but the rules for this purpose derived from these principles are far from being equally easy in practice.” He continues :

Here, therefore, Mr. De Moivre quitted his *first hypothesis*, and finding that the *second hypothesis* afforded, in the case of *joint lives*, rules that were as easy as the rules given by the other hypothesis were in the case of single lives, he chose to adopt this hypothesis : believing at the same time that the values of *joint lives* obtained by rules derived from it would not deviate much from the truth. But in this he was greatly mistaken. The values of two joint lives obtained by these rules are so wrong that in finding the present value in a *single payment*, of one life after another, they generally give results which are near a *quarter* of the true value too great ; and about *two-fifths* too great when the value is sought in ann. payments during the joint lives. These are errors so considerable that I think it of particular importance that the public should be informed of them in order to prevent the inconveniences and perplexities they may occasion.

Mr. Simpson had previously—in the appendix to his *Treatise on the Doctrine of Annu. and Rev.*—observed that De Moivre's rules for finding the values of joint lives were wrong ; and De Moivre had in his 4th ed. altered some of them in consequence.

The *Table for finding the Value of Leaseholds on Lives, etc.*, pub. by John Richards of Exeter, 1730, were partly based on De Moivre's hypothesis.

James Hardy's *Complete System of Int. and Annu.*, 1753, contained annu. values calculated from this T., and also from Halley's and Simpson's.

Dr. Price employed this hypothesis in the early edits. of his *Observations on Rev. Payments, etc.*, first pub. 1771. He says (p. 104) :

I have calculated here, as well as in most other places, from Mr. De Moivre's hypothesis, because its conformity to the three T. which I have so often mentioned [BRESLAU, NORTHAMPTON, and NORWICH] convinces me that it gives a proper medium between the different values of *town* and *country* lives. In the country, the prob. of life are much higher ; but in Lond. and prob. in all our *great towns*, and some *smaller* ones, they are much lower.

The hypothesis, therefore, is by no means applicable to *Lond.* lives. It is proper to add that neither can it be applied to the valuation of *country* lives. It appears from the regis. of the parish of *Holy-cross* that the expec. of lives there are much greater than the expec. by the hypothesis.

The following T. is furnished in proof :

Age 20	Holy-cross 38 years.	By hypothesis 33 years.	In Lond. 28.9 years.
27	33.9	29.5	25.1
30	32	28	23.6
40	25.7	23	19.6
50	20	18	16
60	14.5	13	12.4
70	10	8	8.8

In a later ed. (5th, p. 307, vol. i.) Dr. Price says :

This hypothesis, I have observed, does not differ much from the T. of Obs. for *Breslau, Northampton, and Norwich*. Between the ages of 30 and 40 it gives the values of *single* lives almost the same with the *Breslau T.* Under 30 it gives them somewhat less ; and above 40 somewhat greater. But it ought to be remembered that wherever it does this, it gives, at the same ages, the values of the *joint* lives also too little or too great ; and that consequently the results from it, in calculating the values of *Reversions*, and of the *longest* of given lives, come so much nearer to exactness.

Dale, in the “Addenda” to his *Calculations, etc.*, 1772, commenting on the T. of L. annu. values deduced by De Moivre from his hypothetical T., says :

Mr. De Moivre makes the value of the life 8 ; to be nothing, for *all* must be dead at 86 : therefore the age of 80 having *no chance* of living beyond 86, the value of the said age by Mr. De Moivre is no more than 2.31 ; and 4.38 is, for the same reason, the value of age 75 ; whereas Dr. Halley's T. has been

extended to the age of 93 (Dr. Price extends it to 90), and therefore the chances of life for the ages 75 and 80 are much more valuable, and produce the differences seen on comparison of the T.; and which are so much the more as the chance of attaining to the age of 93 is more valuable than *certainly* dying before 86, blended with the *over-values* at ages above 40, and which below 70 begin to over-balance the other considerations of surviving beyond 90.

Mr. Joshua Milne, in his art. *ANNUITIES*, *Ency. Brit.*, says :

Upon the whole, this hypothesis of De Moivre has probably contributed to retard the progress of the science, by turning the attention of mathematicians from the investigation of the true law of mort., and the best methods of constructing T. of the real values of annu.

He adds :

The same distinguished analyst also endeavoured to approximate the values of joint lives; but it has since been found that the formulæ he gave for that purpose are too incorrect for use.

Dr. Farr says—5th Rep. of Reg.-Gen. (1843) :

De Moivre gave his name to an hypothesis, according to which the numbers living decreased in an arithmetical progression down to nothing, at the age 86. It has been since assumed, as stated by Mr. Milne, that "the number of the living in any year of their age is an arithmetical mean proportional between the numbers that annually enter upon and that annually complete that year." . . . This hypothesis, which is interwoven into all the calculations of int. and of L. annu., brings them within the range of algebra; for, without the assumption that the int. of money and the mort. remained uniform for some certain definite time, the resources of the calculus must be called into requisition. *The errors which result in L. assu. from the hypothesis of an equal decrement are small and quite insignificant when compared with the errors of obs., and the errors incurred by the assumption that the int. of money and the mort. will remain stationary for a long series of years.* Still, it must be borne in mind that the rate of mort. varies (insensibly) every moment, and that the errors involved in the hypothesis are greatest in the first year of life.

Although the hypothesis cannot be strictly accepted, the efforts of the life scientists are constantly directed towards obtaining a single formula that shall express the rate of mort., without greatly departing from the simplicity of that of De Moivre. Indeed, every attempt to graduate a tabulated record is a step in that direction, and the much-discussed formula of Gompertz offers a near approach to the desideratum.—*Paterson*, 9th Rep. of N.Y. Ins. Dept., 1868.

Numerous other writers have descanted on this hypothesis, for and against; but we believe we have covered the ground of their several criticisms. We are especially indebted in certain parts of this art. to the writings of Mr. E. J. Farren.

DE MONTMORT.—See MONTMORT, PIERRE REMOND DE.

DE MORGAN, AUGUSTUS.—A distinguished writer on mathematical, as indeed on many other, subjects. He was born at Madura, in the East Indies, in 1806, his father being an officer in the Madras Army. He traced a descent from James Dodson, author of the "Anti-Logarithmic Canon." He was educated at Cambridge, where in 1827 he was Fourth Wrangler, and took his B.A. degree. He commenced to train for the bar; but on the founding of the Lond. University in 1828, he was appointed and accepted the position of Prof. of Mathematics, which, with a short intermission, he retained up to his death.

Prof. De Morgan was the author of a very numerous list of works and learned papers. We shall only notice those which come within the scope of our present purpose.

His first work was *Elements of Arithmetic*, 1830. In 1855 he pub. *Elements of Algebra, preliminary to the Differential Calculus*. In 1836: *The connexion of number and magnitude: an attempt to explain the Fifth Book of Euclid*. He was also the author of the art. *Probabilities* in the *Ency. Metropolitana*, pub. in 1837.

In 1838 we reach the best known of his works to ordinary ins. students: *An Essay on Probabilities; and on their application to life contingencies and ins. offices*. This work formed a vol. in *Lardner's Cabinet Cyclo.* It was the subject of an able critique in the *Quarterly Review*, Oct. 1839.

In 1838 also he pub. *Remarks on an accusation made by the proprietors of "The Ency. Metropolitana" against the author of "An Essay on Prob. and their application to life contingencies and ins."*

In 1839 he contributed to the *Phil. Mag.* a paper: *On a rule for finding the value of annu. on three lives*. This paper is reprinted in vol. x. of *Assu. Mag.* p. 27.

In 1840 he pub. the art. in the "Companion to the Almanac": *On the calculation of single life contingencies*; the same being continued and completed in the same pub. for 1842. [COLUMNAR METHOD.]

In 1842 he pub. *The Differential and Integral Calculus*. This publication came out under the immediate superintendence of the So. for the Diffusion of Useful Knowledge, in whose periodicals the chapters had orig. appeared. Prof. De Morgan was one of the Man. Committee of this Society.

In 1847: *Arithmetical Books from the invention of printing to the present time: being brief notices of a large number of works drawn up from actual inspection*. This work contains a list of some 1500 works, many of which are so rare that to have seen a copy is something to remember and be proud of. The author says :

Looking at the various countries which have enjoyed the art of printing from 1500 downwards, I have an impression, from all that I have gathered, which would lead me to suppose that the number of works on arithmetic pub. in Latin, French, German, Dutch, Italian, Spanish, and English, up to the middle of the last century, cannot be less than 3000, which gives in each language less than an average of one a year.

He has contributed the following papers to the *Assu. Mag.*:

- 1851—A short paper or "note," *On the equivalence of compound int. with simple int. paid when due.* [vol. i. p. 335.]
- 1852—A Letter: *On a method of checking annu. tables at different rates of int. by help of one another.* [vol. ii. p. 390.]
- 1854—Account of a correspondence between Mr. George Barrett and Mr. Francis Baily. [vol. iv. p. 185.] [BARRETT, GEO.] [COLUMNAR METHOD.] In the same year he read before the Inst. of Act. a purely scientific paper, *On the demonstration of formula connected with int. and annu.* [vol. iv. p. 277.]
- 1855—*On some questions of Combination.* [vol. v. p. 93.] This also is a purely scientific paper.
- 1858—*On the determination of the rate of int. on an annu.* [vol. viii. p. 61.] In this paper he gives an interesting account of some of the early writers on int. and annu. [INTEREST OF MONEY.]
- 1859—*On a property of Mr. Gompertz's Law of Mort.* [vol. viii. p. 181.] [GOMPERTZ, B.]
- 1860—*Newton's T. of Leases.* [vol. ix. p. 185.] [LEASES.] In the same vol. p. 86, *On an unfair suppression of due acknowledgment to the writings of Mr. Benjamin Gompertz;* and a letter *On the authorship of the treatise on Prob. pub. by the So. for the Diffusion of Useful Knowledge.*
- 1861—*On Gompertz's Law of Mort.* [GOMPERTZ, B.]
- 1862—*On the rejection of the fractions of a pound in extensive valuations.* [vol. x. p. 247.] [FRACTIONS.] Same vol. p. 281, *A query about interest accounts.*
- 1863—*On the forms under which Barrett's method is presented, and on changes of words and symbols.* [vol. x. p. 302.]
- 1865—*On a problem in annuities, and on Arbogast's method of development.* [vol. xii. p. 206.]
- 1866—*On the summation of divergent series.* [vol. xii. p. 245.]
- 1866—*On the calculation of single life contingencies.* [vol. xii. p. 328.]
- 1866—Part II. of same subject. [vol. xiii. p. 129.]
- 1867—*Fourier's Statistical Tables.* [vol. xiv. p. 89.]
- 1868—*On the final law of the sums of drawings.* [vol. xiv. p. 175.]
- 1868—*Some account of James Dodson, F.R.S.* [vol. xiv. p. 341.]

The *Assu. Mag.* also contains reprints of some interesting papers which the learned Professor had contributed to other periodicals.

It is stated that at one period Prof. De Morgan had considerable employment as a consulting act. His name was pub. in that capacity by the *Travellers and Marine Ins. Co.*

Prof. De Morgan contributed very largely to the orig. *Penny Cyclopædia*: indeed it may be said that most of the mathematical and astronomical articles—with many others on scientific biography—were written by him. The same may be said perhaps hardly in a less degree of the *English Cyclo.* He was also a regular contributor to the *Companion to the Almanac*, to the *Phil. Mag.*, to the *Athenæum* [in which his curious *Budget of Paradoxes* first appeared], to *Notes and Queries*, and to other pub. He was one of the Secretaries and on the Council of the Royal Astronomical Society.

Beyond his extended learning, one noticeable feature in Prof. De Morgan's writings is his wonderful command of the English language. Few writers have ever used it with such force and freedom combined.

This distinguished man died in 1871, aged 65.

DE MORTE HOMINIS NULLA EST CUNETATIO LONGA.—Concerning the death of a man, no delay is long.

DE NAVIBUS ET NAULO.—The famous work of Roccus, pub. in Naples about 1655, concerning vessels and freights. [ROCCUS.]

DE NOVO.—Afresh; anew; to begin again.

DE PARCIEUX.—See DEPARCIEUX, M. DE ANTOINE.

DE RATIOCINIIS IN LUDO ALÆÆ.—A treatise on the doctrine of chances written in Dutch by Christian Huygens, and afterwards trans. into Latin by Francis Schooten, and pub. in a treatise of the latter printed at Leyden in 1657.

DE RE RUSTICA, OR THE "REPOSITORY."—This work is quoted by Dr. Price, in the 2d ed. of his *Observations*, as containing the abstract of a paper on the pop. of the Pais de Vaud, in Switzerland. We have never met with the book.

DE SAINT CYRAN.—See SAINT CYRAN, M. DE.

DE SAINT MAUR, DU PRE.—See DUPRE DE ST. MAUR.

DE SIMILIBUS IDEM EST JUDICIUM.—In like cases the judgment is [should be!] the same.

DE VATTEL.—See VATTEL.

DE WATTEVILLE.—See WATTEVILLE, M. DE.

DE WIT, JOHN, Grand Pensionary of the States General of Holland, was born at Dort in 1625, where he prosecuted his studies with great diligence, and when 23 years of age pub. a work on mathematics—*Elementa Curvarum Linearum*, of which Condorcet speaks in terms of eulogy. After taking his degrees and travelling, he became, in 1650, Pensionary of Dort, and by distinguished services in public affairs he raised himself to the rank of Pensionary of Holland.

The financial resources of Holland had been severely taxed by a war between the

United Provinces and England, and some expedient became necessary in order to recoup the Exchequer, and provide for future emergencies. It was at this juncture that De Wit conceived the idea, since so largely acted upon by England and other countries, of raising national loans by means of life annu. secured upon the revenues of the State.

In the course of his mathematical studies De Wit had doubtless become familiar with the investigations of the mathematical theory of prob. by Pascal. The range of these inquiries had been enlarged by Huygens, in his treatise written in the Dutch language. This treatise again was done into Latin by Schooten, another Dutchman, and printed at the end of his *Mathematical Exercises*, pub. at Leyden in 1657. These labours, as Mr. Hendriks has happily put it, "were quite sufficient to point out the fundamental proposition, that the prob. of any event happening (or not happening) might be expressed by the ratio of the number of chances for its happening (or not happening, as the case may be) to the total number of the chances for its happening and for its not happening."

On the 25th April, 1671, it was resolved by the States General to negotiate funds by life annu. The details of the scheme were to be considered on a future occasion. The principle alone was now determined upon. Collecting the regis. of births and deaths in various towns in Holland, and taking obs. upon the average duration of life among the State pensioners, the Prime Minister, De Wit, prepared a report and treatise on the terms of such transactions, under the title of *Waardye van Lyf-renten naer proportie van Losrenten*.

On the 30th July, 1671, the resolution of the preceding April was confirmed, and on the same day De Wit's report was, at the request of several members, distributed to them.

In our hist. of ANNU. ON LIVES we have already given the substance of this famous rep. of De Wit's. In add. to the intrinsic interest of this document, it has if possible a still greater collateral interest. "*It is entitled to be considered as the first known production of any age treating in a formal manner the valuation of life annu.*"—Hendriks. It stands first in that wonderful array of works upon the same subject which are now known! Does it not almost surpass belief that a treatise of such importance should have remained lost to Europe for a period of nearly two centuries? Yet that it was so, and that an Englishman led to its re-discovery, and that the document itself, as well as its hist., were again revealed in the pages of the *Assu. Mag.* [vol. ii. 1852], are all facts well known.

Leibnitz has the credit of being the first author known to have drawn attention to the researches of De Wit on the subject of L. annu. His fullest remarks thereon are to be found in his work, *Nouveaux Essais sur l'Entendement Humain*—a posthumous work, composed before the year 1700. These remarks are supposed to have led M. de Montmort to pursue the investigation. In his reply to the reflections of Bayle, written about 1694, an interesting general notice occurs on the important application by De Wit of the Doctrine of Chances to L. annu., and mention is made of Hudde's labours on the same subject.

In the adv. to the 2nd ed. of M. Rémond de Montmort's *Essay d'Analyse sur les Jeux de Hazard*, pub. in Paris in 1713, there occurs the following passage.

I have learned that M. Hudde and the famous M. Wit, Pensionary of Holland, gave some calculations of the interest, by way of annu., suitable to persons at various ages. It would seem that what they have given differs little from that which I have related of Mr. Halley, and supposes a knowledge of the different degrees of mort. of the human race. What there is of calculation is very easy, and depends almost entirely on the solution of the following problem, which M. Leibnitz solved in 1683, in a very elegant manner, viz. "*To find the present value of any sum payable at the end of any number of years.*" The great difficulty is to have exact T. like those which Mr. Halley made use of for the foundation of his calculations. *It is to be wished that the obs. should be continued for a greater number of years, and that the like should be made in several great cities of Europe.*

Door Nicolaus Struyck, in his work pub. 1740, mentions De Wit's report, and the date of its pub. He also refers to its final results; but it has been doubted from his manner of reference whether he really ever saw it. [See 1802.]

Montucla tells us in his *Histoire des Mathématiques*, 1758, that when Leibnitz was in Holland [which was not many years after De Wit's death], he made every effort to obtain a copy of the Grand Pensionary's treatise, but without success.

The Marquis de Condorcet, in the preliminary discourse of his great work pub. in Paris in 1785, says:

The first mathematician who thought of applying calculation to political questions is the celebrated John De Wit, Grand Pensionary of Holland. His wise and courageous conduct in this important position, his virtues, his patriotism, his unhappy end, have made his name dear to all who love their country, or whom virtue affects. There were greater names in the last century, but no more respectable name could perhaps be cited. John de Wit had been a disciple of Descartes, and one of his best disciples. *It was he who first essayed to fix the rate of life annuities according to the probabilities of life given by the tables of mortality.* Upon politics, upon the true interests of nations, upon the freedom of trade, he had very superior ideas to those of his age, and we may say that his premature death was a misfortune to Europe as well as to his country.

De La Lande, in the 3rd vol. of *Montucla*, 1802, says:

The problem of life annu. was treated by Van Hudden, who, although a geometrician, was also Burgomaster of Amsterdam, and by the celebrated Pensionary of Holland, John De Wit, one of the first promoters of the geometry of Descartes. . . . Each of the two was in a position to know the importance of the subject, and to procure the necessary examinations of the regis. of mort. Leibnitz being also in Holland some years afterwards used his every endeavour to obtain the work of John De Wit, but he could not succeed: *it was not however absolutely lost*, for Nicholas Struyck informs us that he had a copy of it in his hands, and he gives us a *précis*, from which is seen how rightly John De Wit reasoned upon this subject.

Mr. Francis Baily, in his *Doctrine of Annuities*, etc., 1813, merely makes casual mention of De Wit as follows :

The subject of life annu. was treated by Van Hudden, of Amsterdam, and likewise by the celebrated Jean De Wit, in his treatise entitled, etc.

Mr. Joshua Milne, in his art. "Annuities" in the *Ency. Brit.*, first pub. 1814, mentions De Wit's treatise, but says :

This, however, appears to have been very little known or read, and to have had no sensible influence on the subsequent progress of the science, the orig. of which may be properly dated from the pub. of Dr. Halley's paper on the subject in the *Phil. Trans.* for 1693.

The Baron Collet d'Escury, in his *Glory of Holland in the Arts and Sciences*, pub. at the Hague, 1835, says of De Wit :

He knew how to apply his scientific acquirements to the interests of the public, and even to reconcile his inclination for the sciences with the obligations of his official functions, and make it conduce to the utility of the country. Hence the so important treatise upon the value of L. annu. in proportion to redeemable rents, . . . pub. in 1671, and the object of which was to demonstrate that it was more advantageous to the State to borrow by way of L. annu. than by redeemable rents. . . . From that moment people were led to scrutinize the rules of the calculus of prob.; which were in existence it is true, but the application of which could not be made so easily or with such certainty as at the present day, now that progress has been attained in the knowledge of the laws of mort.; and this is why De Wit acquired a great renown through this work, which demanded so much judgment and penetration.

If this great man had devoted himself entirely to the cultivation of the sciences, without having to fill other duties which demanded all his care, he would have shone in them with the same brilliancy which hist. represents him to us as diffusing upon the theatre of politics—a lustre which has excited the admiration and respect of all Europe.

Dr. Gouraud, in his *Histoire du Calcul des Probabilités*, Paris, 1848, says :

The Grand Pensionary John De Wit, who was not only a politician of the highest character, but also a geometrician of the first distinction, pupil of Descartes, and quite at the summit of the mathematical intelligence of his time, thought of directly applying calculation to the determination of the likelihood which there might be for a man, in each year of life, to die in a given lapse of time. Consulting, for that result, the regis. of the deaths and births of different towns in Holland, he thence drew the necessary elements for the formation of an extraordinary T, and of a nature until then unknown. . . . This astonishing invention, destined for so enlarged a subsequent use, was then in no way noticed, and the composition of De Wit (. . . always a rare work. . . .) waited 20 years for a reader.

We have omitted in this extract some statements so inexact as to lead to the impression that the writer had himself never seen the work which he was noticing.

Simons, in his work *John De Wit and his Age*, says :

De Wit first gives the rules of the calculus of chances by simple examples, with their explanation, that is to say, to as great an extent as is necessary for his object. They are the rules which Huygens had already developed in his treatise; . . . but the application of those rules to the calculation of the values of L. annu. is the work of De Wit, and he is in my opinion the first who made so useful an application of the doctrine of chances. The law of mort. was then almost entirely unknown; at that time one could only base such calculations upon more or less prob. suppositions. If we consider the slender progress which the calculus of prob. had then made, we must look upon the whole treatise as an eminent proof of the inventive genius of its celebrated author; and Hulde, who, at the request of the Grand Pensionary, had examined this work, and who certainly was a competent judge, declares that it is based upon solid mathematical principles.

A controversy has originated, and been from time to time revived, as to whether De Wit or Halley was the originator of the proper method for determining the proper values of L. annu. The subject will be considered in some detail under LIFE CONTINGENCIES.

Mr. Frederick Hendriks contributed to vol. ii. of *Assu. Mag.*, 1852, a paper, *Contributions to the Hist. of Ins. and the Theory of L. Contin., with a Restoration of the Grand Pensionary De Wit's Treatise on L. Annu.* The subject is continued through several papers into vol. iii. From these papers we have drawn many of the details now given.

The especial interest in Mr. Hendriks' papers arises not only from the details given concerning De Wit, but also and more particularly from the discovery of the famous treatise itself, after it had "remained as good as lost for now one hundred and eighty years." Mr. Hendriks, to whom the world is indebted for its discovery, thus describes the incidents attending it :

I had for some time been desirous of endeavouring to clear away the veil under which the work in question had been concealed. After fruitless attempts to attain this object here, it occurred, as a matter of conjecture, that the treatise, not included in such collections of De Wit's works as could be referred to, was, in all likelihood, written by him for some Government purpose, and consequently might be found in the State archives of Holland, either in manuscript or printed form. Supplying an esteemed correspondent with some collateral details in support of that view, researches were, through his aid, made at Amsterdam and the Hague. At length conjecture was justified by the ascertained fact of De Wit's Treatise on annuities having been inserted in the "Resolutions of the States of Holland and West Friesland" of the year 1671; and being furnished with a transcript of the original in Dutch, and with the more immediate assistance of a French version, the difficulty was at an end. —*Assu. Mag.* vol. ii. p. 257.

Mr. Hendriks inclines to the view that there may have been State reasons for the suppression of the treatise :

The States of Holland were becoming involved in fresh imperative necessities for the raising of funds to carry on immense naval operations against England, and military defences against the beleaguering forces of France. Money had to be raised at the utmost sacrifice. The States might have been fully impressed with the truth of the theory of annu. presented in De Wit's report, and perfectly ready to avail themselves of the calculations he was at the pains of making; but at the same time they must on deliberation have perceived the impracticability of negotiating funds by this means at the low rate of interest there exemplified. . . . The circumstances quoted by Adam

Smith with regard to the practice in this country in the reign of William III. can be quoted as an instance in point; for although the English Gov. held out the inducement of 14 p.c. at any age, by way of life annu., the public were very loth to embark their money at what would in fact have been a fortune to them, and held such views of the instability of the times that these terms procured few purchasers.

Mr. W. T. Thomson, in his *Proof-Sheets*, 1856, after a review of the whole subject of De Wit's treatise, says:

Independently of the originality of the design, we must give him the entire credit of having discovered a correct principle on which the value of a life annu. might be calculated.

In 1858 there was read before the Academy of Moral and Political Sciences in Paris, by M. Esquirou de Parieu, Vice-President of the Imperial Council of State, etc., a paper—*John De Wit; or, Twenty Years' Interregnum in the Stadtholdership of the Seventeenth Century*. This chiefly relates to the political incidents of De Wit's life. A trans. by Mr. F. Hendriks is given in vol. viii. *Assu. Mag.* p. 205 (1859).

The political fame of John De Wit has overpowered that which he might have gained from science, and thus his mathematical attainments are rarely noticed.—*Todhunter*, 1865.

It remains to be told that after the important services to his country already named, he fell into unpopularity, and resigned his office. His brother, Cornelius De Wit, also an eminent man, had been thrown into prison on a false charge of having plotted against the life of William of Orange. On a certain day he was to be released. John drove to the prison to accompany his brother home. They were attacked by the mob at the prison gates, and murdered under circumstances of the greatest atrocity. This was in 1672, John De Wit being then but 47 years of age. [ANNU. ON LIVES.] [LIFE CONTINGENCIES.] [PROBABILITY.]

DEACON, ALBERT JUSTUS, was Sec. of *Amicable Mut. L.*, Dublin, during its brief career.

DEAD.—Deprived or destitute of life; lifeless; in an organized being, that state in which all the vital functions have entirely ceased to act.

DEAD BODIES CAST ON SHORE.—In 1808 there was enacted the 48 Geo. III. c. 75—*An Act for providing suitable interment in churchyards in parochial burying grounds in England for such dead human bodies as may be cast on shore from the sea, in cases of wreck or otherwise*. The churchwardens are to cause the interment to be made. The expense is to fall on the county.

DEAD BODY.—A gaoler cannot detain the dead body of a person in his custody under a *ca. sa.* until the executors of the deceased person satisfy his pecuniary claims upon the deceased. This has been so held in several cases upon the law-books.

DEAD FREIGHT.—The unsupplied part of a cargo, or the freight payable by a merchant, where he has not shipped a full cargo, for the part not shipped.

DEAD LIGHTS.—Strong wooden shutters made exactly to fit the cabin windows externally; they are fixed on the approach of bad weather.

DEAD-ON-END.—The wind blowing directly adverse to the vessel's intended course.

DEAD RECKONING.—A term used in navigation to express the estimation that is made of a ship's place or position at sea, without having recourse to obs. of the heavenly bodies. It is made by obs. the way she makes by the log, and the course on which she has been steered, making allowance for drift, leeway, etc.—*Brande*. This reckoning, however, should be corrected by astronomical obs. of the sun, moon, and stars, whenever available, proving the importance of practical astronomy.—*Smyth*.

DEAD USE.—A future use, in a legal sense.

DEAD-WATER.—The eddy-water under the counter of a ship under way; so called because passing away slower than the water alongside.—*Smyth*.

DEAD WEIGHT.—A vessel's lading when it consists of heavy goods, but particularly such as pay freight according to their weight and not their stowage.

DEADENED FLOORS.—Three or four inches of mortar between the floor-joists tend much to the safety of the building, by confining the fire to the room where it commences, until it can be extinguished. Such floors, with *iron laths* for the walls, would make it almost impossible for a fire to extend beyond the room where it commences.—*Fire Underwriters' Text-book*, 1872.

DEADENING WAY.—To retard a ship's progress by bracing-in the yards, so as to reduce the effect of the sails, or by backing minor sails. "Also when sounding to luff up and shake all, to obtain a cast of the deep-sea lead."—*Smyth*.

DEAF AND DUMB.—Whenever L. Ins. shall assume its destined phase of making *complete provision for prospective families*, one of the contingencies to be taken into account will be the chance of children being born either deaf or dumb, or both; or of their becoming so at any time after birth. Very ample statistics on the subject may be obtained, especially in the General Report on the Census of 1861. We propose to deal with the subject very briefly.

In 1861 the number of deaf and dumb in E. and W., as returned at the Census, was 12,236—of whom 6841 were males, and 5395 were females. This was in the ratio of 1 in 1640 of the general pop. In 1851 the number returned was 10,314—males 5640; females 4674—being in the ratio of 1 in 1738 of the pop. In *Scotland* the number of deaf-mutes returned in 1861 was 2335, or 1 in every 1311 of the inhabitants. In 1851 the number

had been 2155, being 1 in 1340—increase in 10 years 8 p.c. In *Ireland* the number of deaf and dumb, and dumb only, in 1861 was 5653—males 3132; females 2521—or 1 in every 1026 of the pop.

It will be observed that the ratios for both Scotland and Ireland are much higher than those for E. and W.; while the latter had increased 19 p.c. during the decenniad—the pop. having only increased 12 p.c. during the same period. The Census Commissioners say hereon :

We are almost driven to one of two conclusions : either that in 1851 the numbers were understated to a greater extent than was anticipated, or that the infirmity of deaf-dumbness is on the increase in England. We have no certain information to guide us in forming a correct opinion on the subject ; but as the inquiry in 1851 was the first of the kind instituted in this country, it is not improbable that the deaf and dumb were less carefully noted in the schedules than on the more recent occasion.

The aggregate returns for the U.K. with the Channel Islands and the Isle of Man gave a total of 20,311 mutes, being 1 in every 1432 of the pop. By the aid of an interesting T. prepared by the Census Commissioners of Ireland in 1861 we are enabled to make the following comprehensive comparison :

Deaf and Dumb to Pop.				Deaf and Dumb to Pop.			
Savoy	...	...	1 in 443	Hanover	...	...	1 in 1450
Piedmont	...	...	1 ,, 563	Saxony	...	...	1 ,, 1629
Wurtemberg	...	...	1 ,, 901	France	...	...	1 ,, 1671
Norway	...	...	1 ,, 1200	Bavaria	...	...	1 ,, 1774
Prussia	...	...	1 ,, 1334	Denmark	...	...	1 ,, 1920
Sweden	...	...	1 ,, 1360	Belgium	...	...	1 ,, 2277
U. K.	...	...	1 ,, 1492	Holland	...	...	1 ,, 2714

The distribution of deaf and dumb in E. and W. (say the English Census Commissioners, 1861), points to the fact that "special influences, at present imperfectly understood, are in operation in particular localities." In Herefordshire the ratio was found to be 1 in 998 persons ; while in Kent, Hants, Huntingdon, Leicester, York, North Riding, and Durham the ratios were 1 in 2000 and upwards. The following are the numbers and ratios in the several divisions of England arranged according to the prevalence in mutism :

Proportion to Pop.				Proportion to Pop.			
South-Western	...	...	1 in 1390	South-Midland	...	...	1 in 1642
West-Midland	...	...	1 ,, 1511	York	...	...	1 ,, 1649
London	...	...	1 ,, 1542	North-Midland	...	...	1 ,, 1723
Eastern	...	...	1 ,, 1567	South-Eastern	...	...	1 ,, 1808
Welsh	...	...	1 ,, 1613	North-Western	...	...	1 ,, 1856
E. and W.	...	...	1 ,, 1640	Northern	...	...	1 ,, 1995

The relative proportions in 1851 were much the same.

The following T. shows the proportion of the blind and deaf and dumb at different ages to the male and female pop. in E. and W. in 1861 :

Years of Age.	To every 100,000 living at each age the proportion of			
	Blind.		Deaf and Dumb.	
	Males.	Females.	Males.	Females.
All ages	104·8	88·5	70·0	52·4
0	21·6	17·5	21·9	19·2
5	27·8	23·4	85·2	66·1
10	41·8	31·3	98·4	70·8
15	49·7	36·5	83·6	59·9
25	74·7	42·2	73·3	52·6
35	104·0	62·7	68·1	47·1
45	148·8	101·4	67·2	54·8
55	263·4	216·6	64·7	54·6
65	558·3	504·3	59·9	49·4
75	1216·6	1233·4	55·6	43·2
85 and upwards	2468·5	2321·9	61·5	63·1

The Census Commissioners say hereon :

On comparing the ages of the deaf and dumb and of the blind with those of the general pop., the most opposite results are shown with respect to these two classes. In the case of the blind the numbers *increase* at each period from infancy to old age, after 55 very rapidly, and nearly in the same ratio as the general mort. Of the deaf and dumb the highest proportions are at the periods of age ranging between 5 and 25 years, and the numbers then gradually *diminish* as the ages advance. The

increase in the proportion of blind at the higher ages is the result of the additional numbers every year becoming blind; and the rate of increase after puberty is governed by the same law as that which governs other sickness. The facts relating to deaf and dumb children under the age of 5 are from their nature imperfectly recorded. The diminution of the proportion of the deaf and dumb after the age of 15 can only be accounted for by their mort. being at a higher rate than that of the general pop. [BLINDNESS.]

The Irish Census Commissioners, 1861, directed special inquiry to be made regarding the cause of every case of deaf-dumbness reported at the census; but they experienced much difficulty in ascertaining whether the individuals were born deaf or not.

In 1851 a paper by Dr. James Stark, M.D., now chief of the Statis. Depart. of the Reg.-Gen. for Scotland, was read before the Statistical So. of Lond., *Contributions to the V. Statistics of Scotland*. The writer says:

There are few countries relative to which we have returns of the number of deaf and dumb. Yet this is an important element in the pop., especially when taken in connexion with the numbers labouring under mental derangement: seeing that the same general causes which give rise to the production of the one also cause the other. . . .

In 1857 Mr. D. Buxton, Principal of the Liverpool School for the Deaf and Dumb, read a paper before the Liverpool Medico-Chirurgical So., *An Inquiry into the Causes of Deaf-Dumbness*, wherein he gives a large number of facts derived from the experience of various institutions in Europe and America, and states that he had arrived at the conclusion that it was hopeless at present to expect to estab. any fixed ratio between cases of congenital deafness and those which have resulted from accident or from disease acquired after birth.

In 1863 Mr. James Hawkins pub. his work, *On the Constitution of the Deaf-Dumb*. This gentleman, who is, or was, connected with the Lond. School for Deaf and Dumb, states that out of 3050 well-authenticated cases within his own knowledge, 2241 were born deaf; 759 resulted from various diseases; and with respect to 50 no positive information could be obtained. Adding to these the results of 2805 other cases in different institutions and countries, he concludes that the actual preponderance is about 60 p.c. on the side of *congenital deaf*; while 40 p.c. are *accidentally deaf*.

At the Census of the U.S. in 1870 the total number of the deaf and dumb was returned as being 16,205, out of a total pop. of 38,558,371—or 1 in 2379. Of these 8916 were males; 7289 females. The white pop. claimed 14,907; the black 1108; the mulatto 183; the Indian 7.

DEANE, CHARLES ANTHONY, patented in 1823 a smoke and diving apparatus, with which, by means of atmospheric air pumped into a helmet, persons might remain for almost any time in the most smoky atmosphere, provided they were not inconvenienced by heat. It was used by the Lond. firemen with most satisfactory results; and is now used by the Sapeurs Pompiers in Paris.

DEATH, INFLUENCE OF, ON POP.—See FAMINES.

DEATH.—Extinction of life; entire loss of vitality; that state of an organized being in which all its functions have ceased to act; mortality; decease; demise; dissolution.—*Worcester*.

No subject has gained more universal consideration than that of Death: and it is only natural that it should be so, seeing that this is our common inheritance: that it is ever present with us:

Lurks within our cup, while here in health;
Sits by our sick-bed, and mocks our medicines;
Nor can we sit, or walk, or ride, but he is near to seize us.

Is it the mystery which surrounds Death, or the fear of it, which most impresses men's minds?

The weariest and most loathed worldly life,
That age, ache, penury, and imprisonment,
Can lay on nature, is a paradise
To what we fear of death.—*Measure for Measure*.

But we have to deal with the subject here only in the light of the scope of the present work.

It was the interest attaching to the subject of Deaths which first induced the preparation and publication of B. of Mort. The facts contained in these bills supplied the data upon which the science of Life Contingencies has been built up. In our art. **BILLS OF MORT.** the hist. of the data they have furnished has been traced. In our art. **LIFE CONTINGENCIES** the progressive application of the data will be investigated.

The desire to compare the deaths of one period with those of other periods; or of one place with those of other places; or from any one cause at different places and periods; has given rise to numerous investigations, many of them of a most interesting character. These are referred to under various heads in this work; as **CHOLERA**, **CONSUMPTION**, etc. They will be brought under one general review in our art. **MORT. OBSERVATIONS**.

My Lord Bacon, in his famous Essay "Of Death," written 1612, says: "It is as natural to die as to be born; and to a little infant perhaps the one is as painful as the other. He that dies in an earnest pursuit is like one that is wounded in hot blood, who for the time scarcely feels the hurt; and, therefore, a mind fixed and bent upon somewhat that is good doth avert the dolours of Death." And in his later Essay upon the same subject he further says: "I make not love to the continuance of days, but to the goodness of them; nor wish to die, but refer myself to my hour, which the great dispenser of all things hath

appointed me; yet as I am frail, and suffered for the first fault, were it given me to choose, I should not be earnest to see the evening of my age; that extremity of itself being a disease, and a mere return into infancy; so that if perpetuity of life might be given me, I should think what the Greek poet said, 'Such an age is a mortal evil.'

In 1693 there was pub. in *Phil. Trans.* the famous Essay of Halley: *An estimate of the degrees of the mort. of mankind*, etc., of which we have already given a full account under ANNU. FOR LIVES and BRESLAU T. OF MORT. This essay, to which we assign the very origin of the science of Life Contin., was based upon the mortuary records of the city of Breslau; only, however, because they were believed to have been better kept than those of Lond. and other large cities.

In 1742 Herr Sussmilch pub. in Berlin a treatise: *On the divine decree in the variations of the human race with regard to births, deaths, etc.* The work is regarded as of great authority, and is constantly referred to by writers on questions of mort.

Buffon, in his famous *Natural History, General and Particular*, pub. 1749, says:

When we reflect that the European, the negro, the Chinese, the American, the civilized and the savage, the rich and poor, citizen and peasant—otherwise differing so much from each other—are yet all alike in this, that the same measure, the same interval of time, separates their birth from their death—that difference in race, in climate, in food, in comforts, makes no difference in this common interval, we must acknowledge that the length of life depends *neither upon habits, manners, nor quality of food*; that nothing can change the laws of the mechanism by which the number of our years is regulated.

Later writers, as we shall see, do not all agree in the view here expressed.

In 1753 Herr Kersseboom pub. *A view of the relation between the celebrated Dr. Halley's T. and the notions of M. de Buffon for estab. a rule for the prob. duration of the life of man.*

Dr. Price, in his *Observations*, etc., 1771, says:

Death is an evil to which the order of Providence has subjected every inhabitant of this earth; but to man it has been rendered unspeakably more an evil than it was designed to be. The greatest part of that black catalogue of diseases which ravage human life, is the offspring of the tenderness, the luxury, and the corruptions introduced by the vices and false refinements of civil society.

In 1791 the learned Hufeland wrote a work, *On the uncertainty of Death and the means of proving it*. About 1793 he wrote *Macrobiotik; the art of prolonging life*, wherein he considers whether, and in what manner, the life of man can be prolonged. We shall consider this subject under LONGEVITY. Various others have considered *What is Life?* and conversely, *What is Death?*

In 1821 Dr. John Reid, M.D., pub. *Essays on Hypochondriasis and other Nervous Affections*. In these was included one on the "Dread of Death"—a common symptom in nervous diseases; but considered by the author here with regard to its influence on health. According to this writer's view, life is rather spoiled than destroyed in such cases:

The habitual horror which thus overshadows the mind darkens the little daylight of life. An indulgence in this morbid excess of apprehension not only embitters a man's existence, but may often tend to shorten its duration. He hastens the advance of death by the fear with which his frame is seized at its real or imaginary approach. His trembling hand involuntarily shakes the glass in which his hours are numbered. Contradictory as it may appear, there are well-attested instances of persons who have been driven even to suicide by the dread of dissolution. It would seem as if they had rushed into the arms of death, in order to shelter themselves from the terrors of his countenance.

In a paper by the late Mr. Benjamin Gompertz, which appeared in the *Phil. Trans.*, 1825, there occurs the following passage:

It is possible that death may be the consequence of two generally co-existing causes; the one *chance*, without previous disposition to death, or deterioration; the other a deterioration, or an increased inability to withstand destruction. If, for instance, there be a number of diseases to which the young and old are equally liable, and likewise which should be equally destructive, whether the patient be young or old, it is evident that the deaths amongst the young and old, by such diseases, would be exactly in proportion of the number of young to the old, provided those numbers were sufficiently great for chance to have its play; and the intensity of mortality might then be said to be constant, and were there no other diseases but such as those, life of all ages would be of equal value, and the number of living and dying from a certain number living at a given earlier age, would decrease in geometrical progression as the age increased by equal intervals of time; but if mankind be continually gaining seeds of indisposition, or in other words, an increased liability to death, which appears not to be an unlikely supposition with respect to a great part of life (though the contrary appears to take place at certain periods), it would follow that the number of living out of a given number of persons, at a given age, at equal successive increments of age, would decrease in a greater ratio than the geometrical progression; and then the chances against the knowledge of any one having arrived to certain defined terms of old age, might increase in a much faster progression, notwithstanding there might still be no limit to the age of man.

In 1832 Sir Henry Hallford, Bart., M.D., pub.: *Essays and Orations read and delivered at the Royal College of Physicians*, etc. His remarks on the phenomena of the deathbed were read with a good deal of interest. We can only glance at them. Whatever (he said) be the causes of dissolution, whether sudden violence or lingering malady, the immediate modes by which death is brought about appear to be but two. In the one, the nervous system is primarily attacked, and there is a sinking, sometimes an instantaneous extinction, of the powers of life; in the other, dissolution is effected by the circulation of black venous blood in the arteries of the body, instead of the red arterial blood. The former is termed death by syncope, or fainting; the latter, death by asphyxia.

Dr. Wilson Phillip, in his *Enquiry into the Nature of Sleep and Death*, 1834, says, "In the only death which can strictly be called natural, the state of the sensitive system which immediately precedes death differs from its state in sleep in no respect but in degree."

There are a hundred years in which, and hundreds of diseases by which, any individual who is born may die: a lottery, which should contain one ticket for every disorder, repeated as often as there are years of age in which it has been fatal, would represent at least 20,000 chances. Before an individual is born, it is, say, 20,000 to 1 against his dying at a given age of a given malady; and yet even with such imperfect obs. as exist at present, it begins to be seen that uniformity is the law of large masses compared with each other.

—De Morgan, *Prob.* 1838.

In 1842 Mr. John Reid, Surgeon, Glasgow, pub.: *The Philosophy of Death, or a general, medical, and statistical treatise on the nature and causes of human mort.* We need not stay to examine this work in any detail at this point, as the theory of the author regarding death will come before us again presently. [1856.]

The Reg.-Gen., in his 5th Ann. Rep., pub. 1843, says:

In the law which regulates the waste of life two things have been reconciled: the uncertainty of the hour of death, and the constancy in the same circumstances of the mean duration of man's existence. The days of successive generations are numbered, yet a child born to-day may die in any day, hour, or minute, of the next *hundred years*; and until a very advanced age the chances always are that the time of death will be several years distant: the danger of death we know varies at different ages, and in different states of health; but if the limit of life be 100 years, it is on an average 36,525 to one that a person will not die on a given day; 876,600 to one that he will not die on a given hour, and 52,596,200 to one that he will not die at a given minute. These chances—doubled or trebled as life advances—are so low that practically they have little or no influence in ordinary affairs; and as a general rule men have indeed no fear of dying upon any day; yet the knowledge that they may die at any instant exercises a salutary check upon their conduct; and, notwithstanding its sometimes appalling effects, the changing certainty or uncertainty of life, according to the different aspects and points of view, is in harmony with the feelings, hopes, moral constitution, and destinies of mankind.

In the *Quarterly Review* for 1849 [vol. 85, p. 346] there is a most able and learned article on the *Signs of Death*. The writer says:

The pain of dying must be distinguished from the pain of the previous disease, and when life ebbs sensibility declines. As death is the final destruction of corporal feeling, so numbness increases as death comes on. The prostration of disease, like healthful fatigue, engenders a growing stupor—a sensation of subsiding softly into a coveted repose. The transition resembles what may be seen in those lofty mountains, whose sides, exhibiting every climate in regular gradation, vegetation luxuriates at their base, and dwindles in the approach to the regions of snow till its feeblest manifestation is repressed by cold. The so-called agony can never be more formidable than when the brain is the last to go, and the mind preserves to the end a rational cognizance of the state of the body. Yet persons thus situate commonly attest that there are few things in life less painful than the close.

Again:

To die piecemeal carries with it a frightful sound, until we learn by observation, that of all destroyers *time is the gentlest*. The organs degenerate without pain, and, dwindling together, a perfect harmony is kept up in the system. Digestion languishes, the blood diminishes, the heart beats slower, and by imperceptible gradations, they reach at last their lowest term. Drowsiness increases with the decline of the powers—life passes into sleep, sleep into death. De Moivre, the master of calculation, spent at 80, twenty hours of the twenty-four in slumber, until he fell asleep and woke no more. His was a natural death, unaccompanied by disease, and though this is uncommon, yet disease itself lays a softer hand upon the aged than the young, as a tottering ruin is easier overthrown than a tower in its strength. The first symptom of approaching death with some is the strong presentiment that they are about to die. . . .

In the art. "Vital Statistics," contributed by Dr. Farr to McCulloch's *Brit. Empire*, 1854, we find the following:

Human existence may terminate at any instant between 0 and 100 years: it may be a constant process of disease, or remain uninterrupted by a day's sickness. On opening a watch, or any piece of mechanism, and observing the state of its springs, chains, or wheels, it is not difficult to foresee how long its movements will continue; but no one contemplating a solitary individual of the human species, and ignorant of the secret sources of his life, as well as of the many conjectures of external circumstances in which he may be placed, can foretell the period when some mortal derangement will occur in his organization; what diseases he will encounter; how long he will suffer; or the hour when his sufferings and his existence will end. The same uncertainty is extended, in the popular thought, to families, nations, and mankind, considered in collective masses; but obs. proves that generations succeed each other, develop their energies, are afflicted with sickness, and waste in the procession of their life, according to fixed laws—that the mort. and sickness of a people are constant in the same circumstances, or only revolve through a prescribed cycle, varying as the causes favourable or unfavourable to health preponderate.

Again:

The physiological changes in the human body intimate that it was framed to continue in healthy action for 70 or 80 years; yet owing to hereditary weakness, or a vicious tendency, and the imperfect adaptation of parts of the external world to its organization, a certain number of every generation fall sick, and of these a certain number die at all ages: in such a ratio, however, that from birth to the age of puberty the sickness and mort. decline; while from puberty they increase slowly, in a geometrical progression, up to the 50th or 60th year, and then more rapidly to the end. In comparing, therefore, the sanitary state of different nations, it is not enough to know the absolute mort. or sickness to which they are subject, as experience has proved that these may be nearly the same, yet from their bearing differently on the periods of childhood, manhood, or old age, have a different effect on the national strength and resources.

Finally:

Death in its most common form is the effect of disease in the brain and spinal marrow, the blood, the lungs, the heart and blood vessels, the bowels. Fever, inflammation, and various morbid products, infect the whole system, and prove fatal, sometimes by the mechanical injury they do; but more frequently by an alteration of the chemical, physical, and vital processes. Persons die of inflammation in the stomach before its structure is disorganized; fever is at times fatal without producing any essential lesion of a vital part; cholera, plague, and other epidemics, extinguish existence as rapidly as poison.

In 1854 Dr. A. B. Granville pub. his well-known work, *Sudden Death*. He found

that out of 92,774 sudden deaths recorded in the regis., 39,321 were from apoplexy, 35,975 from paralysis, and 17,478 from other causes. Out of 27,848 deaths from these causes, the proportions in the various seasons were as follows: winter, 8164; autumn, 7188; spring, 6728; summer, 5768. These figures overthrow the popular belief that heat promotes disease of the brain, for sudden deaths are much more numerous in winter than in summer! He has also exposed the fallacy of another popular opinion, that sudden death is more frequent in advanced life than among the youthful. He shows that the period of life between 30 and 65 is as liable to sudden death, if not more so, than between 65 and 100. But the proportion of liability of the sexes is very different. It is stated that women have less chance of dying suddenly than men in the proportion of 10 to 18. In paralysis, however, the proportion is reversed, and there the mort. is greater among women. So far as the inquiries went, it appeared that paralysis prevailed much more among those engaged in intellectual pursuits than in those who live by manual labour. Dr. Granville is of opinion, that in all cases of so-called sudden death there has been previous disease, of which death is only the natural termination. Healthy persons are not struck down dead in an instant, but there has been "a preparation, more or less antecedent to the occurrence, which must inevitably have led to it, unless interfered with by a timely and successful watching on the part of the medical attendant. . . . The event was only the natural termination of an inward state of things which insidiously and unsuspectingly was preparing the blow."

In 1855 Prof. A. Buchanan, of the University of Glasgow, read before the Brit. Asso. a paper: *On the Physiological Law of Mort. and on certain deviations from it observed about the commencement of adult life.* We take the following passage from it:

Of the physiological laws subordinate to the general law of mort., the principal, by far, is the *law of natural decay*; which regulates not the human organism alone, but every organism, animal and vegetable, fixing the limits of its periods of existence. This law must not be supposed to operate only in extreme old age. *Every child at birth contains within it the elements of its own decay*; so that although placed in the most favourable external circumstances, and exempted from all noxious influences, the series of organic actions in which life consists would come spontaneously to a termination; and this takes place at all ages, as we infer from seeing health decline, and a fatal disease declare itself, without the intervention of any external cause known to be hostile to human life. . . . To these physiological laws the uniformity in the course of mort. corresponding to age is to be ascribed; for whatever deviations occur in different communities from a difference in external circumstances, the general direction is the same in all, marked by a great excess of deaths, gradually decreasing, in early life; a similar excess, gradually increasing, in advanced life; and a comparatively low mort. in the intermediate period.

In 1856 Mr. John Reid, Surgeon, Glasgow, read before the Inst. of Act. a paper: *On the Progressive Rates of Mort., as occurring in all ages, and on certain deviations*; also on Dr. Buchanan's "*Physiological Law of Mort.*" From an abstract of this paper given in *Assu. Mag.* [vol. vi. p. 129] we take the following passages. The reader will remember that the paper is a controversial one:

The progressive rates of mort., from birth to extreme old age, in a given number of any pop., are known from the proportionate numbers who die at the different ages. This is the only mode of estimating correctly the expect., or conceived "security" of life at any given age—viz. by showing the chance which an individual has of living a certain number of years or shorter periods.

There is no general law of mort. arising from the physiological functions of the animal system, *excepting that resulting from the limit of structural endurance*: an organ may be destroyed in the first week of life from some excited disease, which, apart from that, might have remained entire, say, to the age of 100 years. *Disease is only an accidental occurrence to an individual*; for even the fact of 3900 children dying the first five years, out of 10,000 born, only shows that all these children have become accidentally diseased, or have otherwise met with their death. But it may be said, that such a great proportion dying in infancy and early childhood, must be owing to a vital or physiological cause; or, in other words, that those who have died in early life must have been prone to disease. Such an inference is not admissible, *because, if the child live for any length of time apparently in a healthy state, it must be presumed that that child was born with its vital organs in a fit state for living.*

Further:

Amongst the higher and middle classes the rate of mort. is small, from 25 to 55, whilst the average rate during these ages among the mass of the people is much greater; this fact again sets aside the physiological law, and compels us to trace the causes of death to their circumstantial origin.

A child at birth cannot contain the elements of its own decay, else every child would die because of the presence of those elements, which is contrary to the fact. Life never comes to a "spontaneous termination," excepting, as mentioned above, in some cases of extreme old age—death being the result either of violence, or of organic disease directly or indirectly excited in some organ.

Death being always the result either of injury, disease, or extreme old age, cannot generally be ascribed to any physiological law: for, from the effects of injury or with the commencement of disease, *normal* physiological action ceases. There is, however, one *physiological law of mort.*, viz. that no individual known, since the patriarchal ages, shall reach the age of 200 years; so the period betwixt the birth and death of the oldest individual known would measure the range of that law, which added to all the different contemporaneous terms of life might increase the mean term a unit in some millions! But, admitting many such deaths in extreme old age, from physiological action being worn out, how little would these contribute to estab. a general "*physiological law of mort.*," as against the great prevailing mort. arising from the accidental causes of death, springing from the circumstances and vicissitudes of life!

Out of the obs. of the preceding, and some other writers upon analogous subjects, there has been gradually eliminated the *Law of Human Mort.*, of which we shall trace the development in a more connected and detailed manner under MORT., LAW OF.

Dr. Farr, in the 30th Rep. of Reg.-Gen., pub. 1869, asks, What are Causes of Death? and replies as follows:

The human organism, although the force with which it is animated is indestructible, dies inevitably

under a great variety of conditions. In one instance death is the direct effect of mechanical violence; a mere shock of arrested motion converts the life force into a new form: in another instance blood is lost and the processes of nutrition are stayed: then agents like fire or frost disintegrate the parts, or chemical forces like opium still for ever the living action in sleep. Submersion under water or stoppage of the air-ways shuts out oxygen, and with the cessation of the supply of this element life is extinguished as suddenly as the light of a lamp; so also life slowly goes out when the supply of food is insufficient, as the flame of a lamp dies when oil is withheld.

Adverse living molecular forms too assert their powers over the structure, and, as in smallpox, syphilis, glanders, cholera, and the other zymotic diseases, transform the body into their own substance and habitations, so that it can live no longer its own life, but is transformed first into multitudes of organic particles, and then mayhap, after many transmutations, into air, water, and earth. What was a living nature of the highest form becomes a dull cloud of matter, again after cycles of changes to be incarnated.

The constitution of the tissues undergoes transformations in cancer and tubercle and other analogous diseases as the blood does apparently in diabetes.

The most common form of disease is inflammation and its results in the several organs of which the body is a confederation; and upon taking up these organs singly each is found to have its well characterized diseases: the brain, no longer the seat of intelligence, sensibility, and reason, becomes the seat of madness; the heart loses its wonderful hydraulic precision; the lungs neither drink up nor discharge breath; the stomach transmutates its aliments no longer or transmutates them amiss; the liver and the kidneys fail to supply their specific distillations; the joints decay; the muscular system, once finely adjusted in its movements, is paralysed; the skin loses its fresh colour, and changes into ulcer and leprosy. The formative forces in some cases go wrong, or stop and leave organs unfinished. The reproductive system, too, which creates and perpetuates generations in endless succession, itself kills the parent and child in one flood,—one throe of agony.

Now, when it is considered how multitudinous and complex the causes are, not of the one phenomenon, but of the many phenomena of death,—for death has its many phases as well as life,—it can scarcely be surprising to find that of nearly half a million of deaths no causes were assigned in eight thousand or more instances. In 4630 [Returns, 1867] cases no causes were specified; in 3506 cases it is only inferred that the deaths were sudden, as in them inquests were usually held.

With this general introduction, we proceed to arrange the details of the subject under such heads as may seem most convenient for reference. It forms an essential part of the plan of our work to enumerate *every* cause of death, either past or present.

DEATH, AGES AT.—The early B. of Mort.—that is, all those pub. prior to the early part of the 18th century—did not, so far as we have been able to discover, contain any reference to the ages of the people at death. It was in 1726 that Mr. John Smart, author of the well-known *Int. Tables*, suggested, with a view to the providing of more complete data on which to construct T. of Mort., that the ages should be inserted in the Bills; “then there would, in time, be a good foundation to build upon.” Accordingly, in the Lond. B. for 1727–8 this was done.

After giving the details usual in the Bills of that period, the following add. was made; “whereof have died:

Under two years of age	9851	Forty and fifty	2624
Between two and five	2407	Fifty and sixty	2123
Five and ten	1038	Sixty and seventy	1863
Ten and twenty	950	Seventy and eighty	1290
Twenty and thirty	2254	Eighty and ninety... ..	785
Thirty and forty	2490	Ninety and upwards	135”

The Bill for 1758 sets out for the first time the ages at death in more detail as follows, —after giving the total deaths of males and of females, “whereof have died”:

Under 2 years of age	5971	Between 60 & 70	1208
Between 2 & 5... ..	1795	“ 70 & 80	961
“ 5 & 10	717	“ 80 & 90	320
“ 10 & 20	556	“ 90 & 100	68
“ 20 & 30	1362	A hundred & two	2
“ 30 & 40	1589	A hundred & three	1
“ 40 & 50	1606	A hundred & four... ..	1
“ 50 & 60	1368	A hundred & six	1

The average ann. mort. of E. and W. as shown by the *English Mort. T.* is 24·47 p. 1000 of the living at all ages. But the rate varies very considerably with age; as it also varies with locality and other influences: of which the following illustration may be given:

Proportion of Deaths at different Ages to 1000 Living at all Ages.

Ages.	<i>English Life Table</i> (1838–54).	England (1851–60).	30 Large Town Districts (1851–60).	61 Healthy Districts. (1849–53).
All Ages... ..	24·47	22·17	28·01	17·53
0	6·44	8·98	13·34	5·29
5	2·52	3·00	3·52	2·65
25	3·20	2·90	3·88	2·22
45	4·75	3·07	3·91	2·46
65	6·62	3·70	3·07	4·14
85 and upwards.	·94	·52	·29	·77

The following T. shows the *Proportion of Deaths at different Ages to 100 Deaths at all Ages* :

Ages.	England (1851-60).	30 Large Town Districts (1851-60).	63 Healthy Districts (1849-53).
All Ages... ..	100'00	100'00	100'00
0	40'53	47'62	30'18
5	13'51	12'55	15'10
25	13'06	13'86	12'68
45	13'84	13'96	14'03
65	16'70	10'96	23'60
85 and upwards.	2'36	1'05	4'41

The general mort., without distinction of age, is to a considerable extent made up of children's deaths, and its variation in different districts depends largely upon this element. In the healthy districts, where the general mort. was at the rate of 17'53 deaths in 1000 living, 5'29 of the said deaths were of children under 5 years of age. In 30 large town districts the general mort. was at the rate of 28'01 deaths to 1000 living; and 13'34 of the deaths were those of children under 5 years of age. The total difference in the rates of mort. is 10'48; of which 8'05 is accounted for by the deaths under 5 years of age. This must be borne in mind, as well as the disturbances which are produced by the increase of births, and by migration, by hospitals and by lunatic asylums. — *Supp. to 25th R. of Reg.-Gen.*

As the births increase every year in Eng., the pop. and the deaths in the earlier ages are in undue proportion; thus the general mort., instead of 24'47 p. 1000, becomes 22'45 for years 1838-54; but for 10 years 1851-60 it was 22'17, and of the 22'17 deaths not less than 8'98 were children under 5 years of age, while only 3'70 were of the ages 65-85.

The following T., given in 33rd Rep. of Reg.-Gen., show the rates of mort. for males and females respectively at different ages through life, as observed over a period of 30 years.

Ann. Rate of Mort. p. 1000 MALES, at different Ages, in each of the 30 Years 1838-67, E. and W.

Years.	Deaths to 1000 Living.													
	Ages—Males.													
	All Ages.	0-	5-	10-	15-	25-	35-	45-	55-	65-	75-	85-	95 and up.	
1838	23'4	70'1	9'0	5'2	8'5	10'8	13'6	19'5	34'1	70'5	148'1	298'7	457'0	
1839	22'8	71'5	9'0	5'1	8'2	9'9	12'7	18'0	31'9	65'0	139'1	280'0	396'9	
1840	23'7	75'3	10'8	5'4	8'3	10'0	12'7	18'0	31'4	67'2	145'0	302'8	447'5	
1841	22'4	68'4	9'6	5'1	8'1	9'8	12'2	17'9	31'4	64'8	142'7	296'5	431'6	
1842	22'4	70'6	9'0	5'0	7'8	9'3	11'9	17'3	30'4	65'7	145'7	294'1	431'4	
1843	22'0	69'1	8'5	4'8	7'7	9'2	12'1	17'2	30'1	65'3	140'7	287'1	426'5	
1844	22'4	70'0	9'0	4'7	7'6	9'3	12'2	17'5	35'0	66'7	146'2	316'4	405'9	
1845	21'7	66'8	8'2	4'7	7'8	9'2	11'9	17'2	29'7	64'1	143'7	301'1	463'4	
1846	23'9	77'8	8'3	5'1	8'6	10'2	12'6	18'0	31'3	66'7	150'3	321'3	491'7	
1847	25'4	76'1	9'7	5'5	9'3	10'9	14'3	20'7	36'5	76'0	172'8	354'6	543'3	
1848	23'9	74'2	10'4	5'3	8'6	10'2	13'0	18'7	32'7	67'2	149'5	305'5	411'0	
1849	25'8	75'3	11'3	6'5	9'5	12'4	15'7	22'6	36'5	71'9	151'6	299'3	419'2	
1850	21'4	67'0	8'2	4'7	7'2	8'8	11'6	17'2	29'8	62'8	140'1	285'3	381'2	
1851	22'8	73'0	8'7	4'9	7'8	9'5	12'4	17'9	30'3	64'0	140'6	282'5	419'4	
1852	23'2	75'0	9'1	5'2	8'0	9'7	12'3	18'1	30'6	62'9	142'0	286'6	445'4	
1853	23'8	73'3	8'5	5'1	8'3	10'2	13'2	19'4	32'4	69'2	159'7	321'0	497'3	
1854	24'4	77'7	9'4	5'6	8'4	10'4	13'6	19'3	31'7	66'8	149'1	290'9	414'3	
1855	23'5	71'9	8'2	5'0	7'8	9'7	12'9	18'5	32'6	71'3	162'8	344'2	471'8	
1856	21'4	67'5	7'2	4'6	7'4	9'0	11'9	16'4	28'8	61'6	131'0	280'9	367'0	
1857	22'6	72'5	7'8	4'7	7'4	9'2	12'2	17'0	29'5	64'6	143'8	302'3	403'7	
1858	23'9	76'8	10'5	5'0	7'7	9'3	12'5	17'3	30'5	68'0	147'0	317'7	477'3	
1859	23'3	75'0	9'3	4'8	7'4	9'2	12'6	17'4	30'2	66'4	140'2	293'8	437'5	
1860	22'2	67'6	6'8	4'1	7'1	9'1	12'7	17'3	30'9	70'4	151'6	311'3	437'3	
1861	22'7	71'8	6'7	4'3	7'3	9'2	12'7	16'9	30'1	68'9	146'5	310'9	448'4	
1862	22'5	69'6	7'7	4'4	7'2	9'4	12'8	17'3	30'3	67'6	140'6	298'5	365'8	
1863	24'2	77'4	10'3	5'0	7'4	9'7	13'3	17'3	30'6	69'2	140'8	312'5	488'5	
1864	25'0	75'4	9'9	5'0	7'8	10'8	14'9	19'0	33'9	77'6	154'1	343'4	532'5	
1865	24'6	74'1	8'2	4'8	7'8	11'2	14'8	19'2	33'1	76'7	155'0	339'7	485'0	
1866	24'7	73'8	7'9	4'7	7'9	11'7	15'5	19'5	32'8	78'4	154'6	342'6	487'1	
1867	23'1	68'0	6'6	4'1	7'3	10'8	14'3	17'6	31'6	78'9	157'4	355'4	521'5	
Mean of the 30 Years	23'3	72'4	8'8	5'0	7'9	9'9	13'0	18'2	31'5	68'5	147'7	309'2	446'9	

Ann. Rate of Mort. p. 1000 FEMALES, at different Ages, in each of the 30 Years 1838-67. E. and W.

Years.	Deaths to 1000 Living.														
	Ages—Females.														
	All Ages.	0-	5-	10-	15-	25-	35-	45-	55-	65-	75-	85-	95 and up.		
1838	21'5	60'1	9'0	5'4	8'5	10'4	13'2	16'8	30'4	58'8	135'2	266'0	370'8		
1839	21'0	61'1	9'4	5'3	8'5	10'1	12'5	15'6	27'6	55'3	126'6	253'2	364'0		
1840	22'0	64'2	11'1	5'7	8'7	10'3	12'7	15'7	28'5	58'9	136'1	284'4	425'6		
1841	20'8	58'6	9'6	5'2	8'4	10'1	12'3	15'4	27'4	58'4	133'8	282'6	427'1		
1842	21'0	60'3	9'2	5'1	8'3	10'1	12'2	15'2	27'3	60'2	130'3	284'1	402'2		
1843	20'5	59'1	8'5	4'9	7'9	9'8	12'3	14'8	26'7	58'9	129'4	276'0	442'2		
1844	20'8	59'1	9'0	5'0	8'1	10'1	12'0	15'2	27'4	60'8	133'7	283'6	426'2		
1845	20'1	56'8	8'0	4'8	8'2	9'8	11'9	14'6	26'4	58'8	129'0	274'8	404'7		
1846	22'2	67'0	8'1	5'4	8'7	10'5	12'4	15'5	27'5	61'9	136'4	302'5	506'3		
1847	23'8	65'8	9'5	5'8	9'2	11'8	14'2	17'8	31'9	70'0	157'7	320'0	520'0		
1848	22'2	64'2	10'0	5'7	8'8	10'9	13'0	15'8	28'3	61'0	134'8	275'5	460'3		
1849	24'5	65'1	11'0	6'6	10'0	13'5	16'1	19'9	33'3	66'2	139'3	279'7	428'6		
1850	20'1	57'5	8'1	4'9	7'8	9'9	11'7	14'7	26'1	57'3	126'3	258'9	427'1		
1851	21'2	63'0	8'6	5'3	8'2	10'1	11'9	15'2	26'8	58'5	128'2	263'6	450'2		
1852	21'6	64'4	8'8	5'4	8'4	10'3	12'1	15'1	26'5	56'6	131'6	276'2	413'5		
1853	22'0	63'4	8'1	5'4	8'7	10'6	12'4	15'8	28'3	60'2	140'7	293'5	472'1		
1854	22'7	67'8	9'2	5'6	8'7	11'0	13'1	16'4	28'3	58'1	133'0	269'5	421'6		
1855	21'7	61'6	8'0	5'0	8'3	10'0	12'4	15'4	29'3	61'5	147'6	315'2	443'0		
1856	19'7	58'9	7'3	4'6	7'6	9'3	11'3	14'0	25'1	51'2	119'8	242'7	366'9		
1857	21'1	63'8	7'7	4'7	7'9	9'4	11'5	14'6	27'1	55'8	131'2	281'4	454'5		
1858	22'3	67'5	10'4	5'4	8'2	9'8	11'9	14'8	27'6	57'3	137'8	297'0	458'5		
1859	21'6	65'2	9'4	5'3	7'9	9'7	11'7	15'1	27'0	53'9	129'2	276'4	404'6		
1860	20'3	57'5	6'9	4'4	7'5	9'4	11'5	15'0	28'6	56'3	136'5	297'1	396'9		
1861	20'6	62'0	6'8	4'4	7'8	9'3	11'2	14'7	28'2	52'5	131'2	266'1	444'8		
1862	20'5	60'2	7'5	4'6	7'5	9'3	11'4	14'9	28'5	52'3	129'8	271'7	397'3		
1863	21'9	67'2	10'0	5'2	7'7	9'6	11'6	15'1	29'0	50'9	131'4	289'2	435'7		
1864	22'6	65'4	9'5	5'1	8'0	10'1	12'2	16'8	32'4	56'5	145'4	305'8	448'5		
1865	22'0	64'4	7'9	4'7	7'9	10'0	12'2	16'9	31'7	53'2	143'8	300'4	486'4		
1866	22'3	64'6	7'4	4'6	8'0	10'3	12'7	17'3	32'7	53'4	146'9	306'1	420'0		
1867	20'6	58'4	6'3	3'9	7'3	9'3	11'5	16'1	31'1	51'2	148'4	299'3	442'2		
Mean of the 30 years	21'5	62'5	8'7	5'1	8'2	10'2	12'3	15'7	28'6	57'5	135'4	283'1	432'1		

The following are some of the more general considerations arising concerning the different sexes at different ages :

Of the 515,329 deaths in E. and W. [in 1870], 211,694, or 41'1 p.c., were of children under 5 years of age, against 40'0, 42'3, and 41'1 p.c. respectively in the 3 preceding years. Among male children the proportion of the total deaths occurring among children under 5 years of age was 43'0 p.c., while among female children it did not exceed 39'1 p.c. . . . To each 100 births in 1870, 16 deaths of infants under one year of age occurred (the per-centage was 17'4 among male and 14'5 among female infants) against 15'6 p.c. in 1869. The proportional infant mort., measured in this way, was 18'3 p.c. during the year in 17 of the largest English towns furnishing weekly returns, and ranged from 15'0 and 16'0 respectively in Sunderland and Portsmouth to 22'1 in Norwich, 23'5 in Leicester, and 25'9 p.c. in Liverpool.

Among children between 5 and 15 years of age, 33,890 deaths were regis. in 1870, or 6'6 p.c. of the deaths at all ages, against 6'3 p.c. in 1869; among male children the proportion was 6'5, and among female children 6'6 p.c. Between 15 and 55 years of age the deaths of males also exceeded those of females, but the per-centage to total deaths, which among persons of both sexes averaged 25'0, was 24'6 only among males, while it was 25'4 among females; between 15 and 35, the principal child-bearing ages, the deaths of females exceeded those of males, and the proportion to total deaths among females was 12'6 p.c., while among males it did not exceed 11'3 p.c.

Not only is the mort. among male infants larger than among females, but of the persons surviving the years of infancy the mean age at death is greater among females than among males. The deaths of persons aged 55 years and upwards showed in 1870 a proportion of 27'3 p.c. of the total deaths; the deaths of males at these ages did not exceed 25'9 p.c., while those of females were 28'9 p.c. The greater longevity among females is more remarkable at the extreme ages; in 1870 the deaths of only 4601 males at the ages 85 years and upwards were regis., while those of females at the same ages were 6660; the proportion of deaths of males aged 85 and upwards was 1'7 p.c. of the total deaths, while of females it was 2'7 p.c. During 1870 the deaths of 18 males and of 63 females, whose ages were stated to be upwards of 100 years, were regis.; in all 81 persons, against 63 and 79 respectively in 1868 and 1869. The highest ages said to have been attained in 1870 were 108 by a male and 107 by a female. [DEATHS AS A MEASURE OF THE EXPECTATION OF LIFE.] [FEMALE LIFE.] [INFANT MORT.] [MEAN AGE AT DEATH.]

DEATH AT SEA.—When a British subject dies at sea, on board a British vessel, the commanding officer of the vessel is required by the General Registration Act, 1836 (sec. 26), to make forthwith a minute of the several particulars required by the Act to be inserted in

the death regis. touching such death, so far as the same may be known, and the name of the vessel wherein the death took place, and shall, "on the arrival of the vessel in any port of the U. K., or by any other sooner opportunity, send a certificate of the said minute through the Post Office to the Reg.-Gen., who shall file the same, and enter a copy thereof under his hand in the marine register book, and keep the same with the other registers, according to the provisions of this Act." [MARINE REGISTER BOOK.]

DEATH BEYOND THE PERMITTED LIMITS OF RESIDENCE AND TRAVEL.—See FOREIGN RESIDENCE AND TRAVEL.

DEATH BY ACCIDENT COMPENSATION ACT—9 & 10 Vict. c. 93 (1846)—known as Lord Campbell's Act. [NEGLIGENCE.]

DEATH BY DUELLING.—See DUELLING, DEATH BY.

DEATH BY HANDS OF JUSTICE.—HANDS OF JUSTICE, DEATH BY.

DEATH BY OWN HANDS.—See FELO DE SE; SUICIDE.

DEATH (OR PERSONAL INJURY) BY WANTON EXPOSURE.—Death from wilful and wanton exposure to obvious personal risk or danger is very properly excluded from the risks ordinarily undertaken by Accident ins. cos. A person has no right to expose his life to obvious danger, where the pecuniary loss involved is to fall upon others: unless, indeed, the risk has been made a matter of special contract. [DEATH IN VIOLATION OF LAW.]

DEATH, CAUSES OF.—In the earliest dawn of the nation, the English inquired into the causes of death, with a view [in certain cases] to discovery and prevention. The protection of life was a fundamental principle of their laws. It was as much an object of their political organization as national defence or war. And the dead body, it was held, called for the coroner's inquest whenever death was sudden, or violent, or in prison; that is, whenever it was the result or appeared to be the result of any discoverable cause. The plagues of the 16th century proved that human life is exposed to invisible enemies more deadly than the mechanical forces of nature, the ferocity of animals, or the malignity of manslayers; and towards the end of Queen Elizabeth's reign the Lond. B. of Mort. were commenced.—*Dr. Farr*, 27th Rep. of Reg.-Gen.

The "Causes of Death" were first returned to the compilers of the Lond. B. of Mort. in 1626; but they were not pub., for reasons already stated [BILLS OF MORTALITY], until 1629. The Table on pp. 198-9 includes the deaths for that and 17 subsequent years—jumping from 1636 to 1647—which certainly presents some very curious features. It was compiled by "J. P.," and pub in his *Collection of the Yearly B. of Mort.*, 1759.

We have already seen—B. OF MORT., 1661—how the causes of death in these early times were ascertained. Many of these causes are spoken of under their separate heads.

Graunt, in his *Natural and Political Observations*, pub. 1661, proposed to make a detailed examination of the Bills, so far as they dealt with the *Causes of Death*; and therein he gives the following reasons for and against the dependence to be placed upon the "searcher's" reports:

Now to make these corrections upon the, perhaps, ignorant and careless searcher's reports, I consider first of what authority they were of themselves; that is, whether any credit at all were to be given to their distinguishments: and finding that many of the casualties were but matter of sense, as whether a child were abortive or stillborn; whether men were aged, that is to say, above 60 years old, or thereabouts when they died, without any curious determination; whether such aged persons died purely of age, as for that the innate heat was quite extinct, or the radical moisture quite dried up (for I have heard some candid physicians complain of the darkness which themselves were in hereupon),—I say that these distinguishments being but matter of sense, I concluded the searcher's report might be sufficient in the case.

As for consumptions, if the searchers do but truly report (as they may) whether the dead corps were very lean and worn away, it matters not to many of our purposes, whether the disease were exactly the same as physicians define it in their books. Moreover, in case a man of 75 years died of a cough (of which had he been free, he might have possibly lived to 90), I esteem it little error (as to many of our purposes) if this person be in the table of casualties reckoned among the aged and not placed under the title of coughs.

In the matters of infants I would desire but to know clearly what the searchers mean by infants; as whether children that cannot speak—as the word infant seems to signify—or children under two or three years old; although I should not be satisfied whether the infant died of wind, or of teeth, or of the convulsion, etc., or were choked with plegm, or else of teeth, convulsion and scouring, apart or together, which they say do often cause one another; for I say it is somewhat to know how many die usually before they can speak, or how many live past any assigned number of years.

I say it is enough if we know from the searchers but the most predominant symptoms: as that one died of the headach, who was sorely tormented with it, though the physicians were of opinion that the disease was in the stomach. Again, if one died suddenly, the matter is not great, whether it be reported in the bills, suddenly, apoplexy, planet-stricken, etc.

To conclude, in many of these cases the searchers are able to report the opinion of the physician who was with the patient, as they receive the same from the friends of the defunct: and in very many cases, such as drowning, scalding, bleeding, vomiting, making away themselves, lunatics, sores, smallpox, etc., their own senses are sufficient; and the generality of the world are able pretty well to distinguish the gout, stone, dropsy, falling-sickness, palsy, agues, pleurisy, rickets, one from another.

He then proceeds to discourse upon such of the causes of death as he conceives "aptest to be confounded and mistaken," of which we shall select a few examples:

Having premised these general advertisements, our *first* Obs. upon the casualties shall be that in 20 years there dying of all diseases and casualties 229,250, that 71,124 died of the thrush, convulsions, rickets, teeth, and worms, and as abortives, chrysomes, infants, livergrown and overlaid; that is to say that about $\frac{1}{3}$ of the whole died of those diseases, which I guess did all light upon children under 4 or 5 years old. There died also of the smallpox, swinepox, and measles, and of worms without convulsions,

12,210, of which number we suppose likewise that about $\frac{1}{2}$ might be children under 6 years old. Now if we consider that 16 (?) of the said 229,250 died of that extraordinary and grand casualty the plague, we shall find that about 36 p. centum of all quick conceptions died before 6 years old.

The *second* Obs. is that of the said 229,250 dying of all diseases, there died of acute diseases (the plague excepted) but about 50,000 or $\frac{2}{9}$ parts. The which proportion doth give a measure of the state and disposition of this climate and air as to health; these acute and epidemical diseases happening suddenly and vehemently, upon the like corruptions and alterations of the air.

The *third* Obs. is that of the said 229,250, about 70 died of chronic diseases, which shows (as I conceive) the state and disposition of the country (including as well its food as air) in reference to health, or rather longevity: for as the proportion of acute and epidemical diseases shows the aptness of the air to sudden and vehement impressions; so the chronical diseases show the ordinary temper of the place: so that upon the proportion of chronical diseases seems to hang the judgment of the fitness of the country for long life.

The *fourth* Obs. is that of the said 229,250, not 4000 died of outward griefs, as of cancers, fistulas, sores, ulcers, broken and bruised limbs, imposthumes, itch, king's evil, leprosy, scaldhead, swinepox, wens, etc., viz. not 1 in 60.

By the year 1665 (the great plague year) the classification of the causes of death had been simplified, and were arranged under the 62 heads enumerated in the accompanying T.

TABLE OF "DISEASES AND CASUALTIES"—CAUSES OF DEATHS—1665.

Abortive and Stillborn.....	617	Jaundies.....	110
Aged	1545	Imposthume	227
Ague and Fever	5257	Kill'd by several accidents	46
Apoplexy and Suddenly	116	King's Evil	86
Bedrid	10	Leprosy	2
Blasted	5	Lethargy	14
Bleeding.....	16	Livergrown	20
Bloody Flux, Scowring and Flux	185	Megrim and Headach.....	12
Burnt and Scalded	8	Measles	7
Calenture	3	Murdered and Shot	9
Cancer, Gangrene, and Fistula	56	Overlaid and Starved	45
Canker and Thrush	111	Palsy	30
Childbed	625	Plague	68596
Chrisomes and Infants	1258	Planet	6
Cold and Cough	68	Plurisy	15
Colick and Wind	134	Poisoned	1
Consumption and Tissick	4808	Quinsy	35
Convulsion and Mother	2036	Rickets	557
Distracted	5	Rising of the Lights	397
Dropsy and Tympany	1478	Rupture	34
Drowned	50	Scurvy	105
Executed	21	Shingles and Swinepox	2
Flox and Smallpox	655	Sores, Ulcers, broken & bruised limbs	82
Found Dead in the Streets, Fields, &c.	20	Spleen	14
French Pox	86	Spotted Fever and Purples	1929
Frighted.....	23	Stopping of the Stomach	332
Gout and Sciatica.....	27	Stone and Strangury	98
Grief	46	Surfeit	1251
Gripping in the Guts	1288	Teeth and Worms	2614
Hang'd, and made away themselves	7	Vomiting	51
Headmouldshot and Mouldfallen	14	Wen	1

In 1751 Mr. Corbyn Morris, in his *Observations on the past growth and present state of the City of Lond.*, suggested a new and improved form of Bill of Mort., viz. "A general bill of the weddings, births, burials, and also of the number dying of each age, and of each disease, within the city and suburbs of Lond. for the year ending, etc." The classification (perhaps we had better say grouping) of the causes of death which he suggested was as follows:—1. Abortive. 2. Ague. 3. Apoplexy, palsy, cramp, and suddenly. 4. Asthma, ptytic. 5. Chin cough, whooping cough and worms. 6. Childbed and miscarriages. 7. Cholick, gripes, twisting of the bowels, flux, vomiting, looseness, bloody-flux, and bleeding. 8. Consumption, jaundice, diabetes, and falling sickness. 9. Convulsions. 10. Dropsy, tympany, stopping in the stomach, rising of the lights, and swelling. 11. King's evil, itch, leprosy, scurvy, St. Anthony's fire, scald-head, imposthumes, sores and ulcers, cancer, canker, fistula, gangrene, and mortification. 12. French Pox. 13. Smallpox and purples (inoculated; not inoculated). 14. Fevers, calentures, inflammations, sore throats, and quinsy. 15. Gout, rheumatism, and sciatica. 16. Gravel, stranguary, and stone. 17. Rickets, and infantine disorders in the head, liver-grown, and ruptures. 18. Lethargy, grief, lunatic, vapours, megrim, spleen, head-ach, blasted, planet-struck, and bed-ridden. 19. Measles, chicken-pox, swine-pox, and rash. 20. Pleurisy. 21. Teeth. 22. Thrush. 23. Casualties, bruised, burnt, choak'd, drowned, executed, self-murder, murdered, overlaid, poisoned, scalded, shot, strangled, smothered, starved, and suffocated.

The whole being thus brought under 23 different heads, but so arranged as to show the number of deaths under 1 month, from 1 to 3 months, from 3 months to 1 year, then

TABLE OF DISEASES AND CAUSES OF DEATH FOR EIGHTEEN YEARS. [See p. 196, line 31.]

<i>The Year of our Lord</i>	1629	1630	1631	1632	1633	1634	1635	1636	1647	1648	1649	1650	1651	1652	1653	1654	1655	1656
Abortive and Stillborn	499	439	410	445	500	475	507	523	335	329	327	351	389	381	384	433	483	419
Aged	579	712	661	671	704	623	794	714	916	835	889	696	780	834	864	974	743	802
Ague and Fever.....	956	1091	1115	1108	953	1279	1022	2360	1260	884	751	970	1038	1212	(?)282	1371	689	875
Apoplexy and Suddenly	22	36	.....	17	24	35	26	.....	68	74	64	74	106	111	118	86	92	102
Bleach .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	3	7	2	.....	.....	.....	1
Blasted	13	8	10	13	6	4	.....	4	4	1	.....	.....	6	6	.....	.....	4	.....
Bleeding	5	2	5	4	4	3	.....	.....	3	2	5	1	3	762	3	2	7	3
Bloody Flux, Scouring, & Flux	449	438	352	348	278	512	346	330	155	176	802	289	833	.....	200	386	168	368
Burnt and Scalded	3	10	7	5	1	3	12	3	3	6	10	5	11	8	5	7	10	5
Calenture .....	.....	.....	.....	.....	.....	.....	1	3	1	.....	.....	1	.....	2	1	1	.....	.....
Cancer, Gangrene and Fistula .....	.....	14	23	28	27	30	24	30	26	29	31	19	51	53	36	37	73	31
Wolf .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	8	.....	.....	.....	.....	.....	.....
Canker, Sore Mouth, & Thrush	6	4	4	1	.....	.....	5	74	66	28	54	42	68	51	53	.....	44	81
Childbed	150	157	112	171	132	143	163	230	161	106	114	117	206	213	158	192	201	177
Chrisoms and Infants	296	278	2035	2268	2130	2315	2113	1895	1369	1254	1085	990	1237	1280	1050	1343	1089	1393
Colic and Wind	48	57	.....	.....	.....	.....	37	50	103	71	85	82	76	102	80	101	85	120
Cold and Cough.....	10	58	51	55	45	54	50	57	.....	.....	.....	.....	.....	.....	41	36	21	58
Consumption and Cough	1827	1010	1713	1797	1754	1955	2080	2477	2423	2200	2388	1988	2350	2410	2286	2868	2666	3184
Convulsion	52	87	18	241	221	386	418	709	684	491	530	493	569	653	666	828	702	1027
Cramp .....	.....	.....	1	.....	.....	.....	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....
Cut of the Stone.....	.....	.....	.....	5	1	5	2	2	.....	2	1	3	.....	1	1	2	4	1
Dropsy and Tympany	235	252	279	280	266	250	329	389	185	434	421	508	444	556	617	704	660	706
Drowned.....	43	33	29	34	37	32	32	45	47	40	30	27	49	50	53	30	43	49
Excessive Drinking .....	.....	.....	.....	.....	.....	13	13	13	8	17	29	43	24	12	19	21	19	22
Executed.....	19	13	12	18	13	13	13	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fainted in a Bath .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Falling Sickness	3	10	7	7	2	5	6	8	3	2	2	3	.....	3	4	1	4	3
Flox and Smallpox	72	40	58	531	72	1354	293	127	139	400	1190	184	525	1279	139	812	1294	823
Found Dead in the Streets	18	33	20	6	13	8	24	24	6	6	9	8	7	9	14	4	3	4
French Pox	17	12	12	12	7	17	12	22	18	29	15	18	21	20	20	20	29	23
Frighted	1	.....	.....	1	.....	.....	.....	3	4	4	1	.....	3	.....	2	.....	1	1
Gout	2	5	3	4	4	5	7	3	4	4	1	.....	3	.....	5	6	8	7
Grief	18	20	22	11	14	17	5	20	12	13	16	7	17	14	11	17	10	13
Hanged & made away themselves	8	8	6	15	.....	.....	8	7	11	10	13	14	9	14	15	9	14	16
Headach .....	.....	.....	.....	.....	.....	.....	4	2	1	1	11	2	.....	2	5	6	5	3
Jaundice	47	59	35	43	35	45	54	63	57	35	39	49	41	43	57	71	61	41
Jaw-faln	10	16	13	8	10	10	4	11	1	1	.....	.....	3	.....	.....	2	2	2
Imposthume	58	76	73	74	50	62	73	130	75	61	65	59	80	105	79	90	92	122
Itch .....	.....	.....	.....	.....	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	58	.....	.....
Killed by several accidents	54	55	47	46	49	41	51	60	27	57	39	94	47	45	57	58	52	43

King's Evil.....	16	25	18	38	35	20	20	69	27	26	22	19	22	20	26	27	24
Lethargy.....	1	.....	2	2	3	.....	2	2	3	4	2	4	4	4	3	9	4
Leprosy.....	2	.....	.....	.....	.....	2	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....
Livergown, Spleen, & Rickets	94	12	99	87	82	77	98	99	53	46	56	59	65	72	67	52	50
Lunatick.....	6	11	6	5	4	2	2	5	12	18	6	11	8	11	9	6	7
Meagrom.....	.....	.....	24	5	.....	.....	.....	22	12	13	.....	5	7	6	14	3	6
Measles.....	42	2	3	80	21	33	27	12	5	92	3	33	33	62	8	11	153
Mother.....	1	.....	.....	.....	.....	.....	.....	3	2	.....	.....	.....	.....	1	2	2	3
Murdered.....	.....	.....	3	7	.....	6	5	8	3	2	7	5	4	3	3	9	6
Overlaid and Starved at Nurse	4	10	13	7	8	14	10	14	25	22	36	28	28	29	30	58	53
Palsy.....	17	23	17	25	14	21	25	17	27	21	19	20	23	20	29	22	23
Plague.....	1317	.....	274	8	.....	1	.....	10400	3597	611	67	15	23	16	6	9	6
Plague in the Guts.....	.....	.....	.....	.....	.....	.....	45	24	30	26	13	20	23	110	32	87	315
Pleurisy.....	26	24	26	36	21	.....	.....	2	.....	.....	.....	.....	.....	19	17	10	9
Poisoned.....	.....	.....	.....	.....	2	.....	.....	2	.....	3	.....	7	.....	.....	.....	.....	.....
Purples and Spotted Fever.....	32	58	58	38	24	125	245	397	145	47	43	65	54	60	75	89	52
Quinsy and Sore Throat.....	10	8	6	7	24	4	5	22	14	11	12	17	24	20	18	9	13
Rickets.....	.....	.....	.....	.....	.....	14	49	50	150	224	216	190	260	329	229	372	458
Mother Rising of the Lights.....	44	72	99	98	60	84	72	104	150	92	115	120	134	138	135	178	212
Rupture.....	2	6	4	9	4	3	10	13	16	7	7	6	7	16	7	15	20
Scald head.....	.....	.....	.....	.....	.....	.....	.....	.....	216	.....	.....	.....	1	.....	.....	2	.....
Scurvy.....	5	7	9	.....	9	.....	.....	25	32	20	21	21	29	43	41	44	71
Smothered and Stuffed.....	.....	24	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
Sorts, ulcers, broken and bruised limbs.....	23	.....	20	48	19	19	22	29	15	17	17	16	26	32	25	23	34
Spleen.....	.....	.....	.....	.....	1	.....	.....	.....	12	17	.....	.....	.....	.....	13	.....	6
Shingles.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	8	7	1	.....	1	3	.....
Starved.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	1
Stich.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stone and Stranguary.....	35	39	58	50	58	49	33	45	45	42	29	28	50	41	44	38	57
Sciatica.....	.....	.....	.....	1	3	.....	1	6	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stopping of the Stomach.....	63	157	149	86	110	114	132	371	29	.....	.....	.....	.....	.....	.....	.....	.....
Surfeit.....	5	8	4	6	3	10	10	6	29	137	136	33	55	67	66	107	145
Swine Pox.....	440	506	335	470	432	454	539	1207	707	597	540	598	709	905	691	128	161
Teeth and Worms.....	8	12	14	34	23	15	27	.....	62	47	3	.....	104	177	178	212	2
Tissick.....	15	23	17	40	28	31	34	.....	1	.....	.....	.....	.....	.....	.....	803	(?)119
Thrush.....	1	4	1	1	2	5	6	3	.....	.....	.....	.....	.....	.....	.....	.....	.....
Vomiting.....	19	31	28	27	19	28	27	.....	147	107	3	7	4	.....	.....	14	27
Worms.....	.....	.....	1	1	4	.....	.....	.....	.....	.....	105	65	85	86	53	.....	.....
Wen.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Suddenly.....	63	59	37	62	58	62	78	34	.....	.....	.....	.....	.....	2	.....	.....	.....

annually up to 5; quinquennially from 5 to 20; and decennially from thence up to 100. It is very much this form of T. which was adopted and is still used in the Reports of the Reg.-Gen. He says:

This T., it is hoped, will oblige the curiosity of intelligent medicinal gentlemen: but as to the method of joining the diseases together, which in many instances may be very incongruous, it is chiefly to be imputed to the original mixtures of these diseases in the bills of mort., which it having been impracticable for me to separate, it hath therefore been necessary to deliver as they were pub.; besides which there hath only been added together in parcels some diseases of lesser fatality, which have seemed to bear an affinity to each other, for the sake of avoiding too great prolixity in the tables.

We may now present to the reader the following classification of the causes of death, taken from the B. of Mort. for 1758—nearly a century later than that we last gave:

TABLE OF "DISEASES AND CASUALTIES"—CAUSES OF DEATH—LOND. 1758.

Abortive and Stillborn	597	Measles	696
Aged	1397	Miscarriage	2
Ague	1	Mortification	154
Apoplexy and Suddenly	191	Palsy	66
Asthma and Tisick	294	Pleurisy	17
Bedridden	4	Quincy	21
Bleeding	8	Rash	4
Bloody Flux	5	Rheumatism	10
Bursten and Rupture	8	Rickets	14
Cancer	34	Rising of the Lights	1
Canker	8	Small Pox	1273
Chicken Pox	1	Sores and Ulcers	14
Childbed	185	Sore Throat	5
Colick, Gripes, and Twisting of the Guts	50	St. Anthony's Fire	4
Consumption	3411	Stoppage in the Stomach	13
Convulsions	4417	Teeth	644
Cough and Hooping Cough	84	Thrush	91
Diabetes	2	Tympany	3
Dropsy	682	Vomiting and Loosness	7
Evil	7	Worms	6
Fever, Malignant Fever, Scarlet Fever, Spotted Fever, & Purples	2472	Broken Limbs	3
Fistula	5	Bruised	3
Flux	7	Burnt	6
French Pox	46	Choked with Fat	1
Gout	39	Drowned	109
Gravel, Stone, and Stranguary	19	Excessive Drinking	2
Grief	5	Executed	14
Headmoldshot, Horshoehead, and Water in the Head	40	Found Dead	4
Jaundies	87	Froze to Death	2
Imposthume	9	Killed by Falls and several other Accidents	58
Inflammation	54	Killed themselves	30
Itch	2	Murdered	5
Leprosy	2	Overlaid	26
Lethargy	4	Scalded	3
Livergrown	1	Smothered	3
Lunatick	72	Starved	4
		Suffocated	9

[Total deaths by casualty, 282.]

In 1832 Mr. Marshall pub. *Mort. of the Metro. : a statistical view of the number of persons reported to have died of each of more than 100 kinds of disease and casualties within the B. of Mort. in each of the 204 years 1629—1831*. Mr. Marshall admits that "a vulgar prejudice has for ages prevailed in regard to the unworthiness of the weekly and ann. reports," but, he considers, "in regard to the diseases or casualties by which the deaths were occasioned, however imperfect the returns of the numbers of burials may have been, if the diseases and casualties which occasioned the demise of those returned as buried have been correctly made, the interest of the statement of diseases herewith exhibited may be considered as not materially, if at all, affected by any defect in the return of the aggregate number of burials." He did not appear to see that the relative frequency of certain diseases and casualties might, by reason of such omissions, be rendered impossible of actual comparison. He says truly;

The most interesting features of the display of the diseases, as herewith exhibited, will be found to consist in the seeming uniformity of some, the extinction of others, and the seeming origin of new ones, as well as the manifest aggregate diminution in relation to the aggregate pop. To ascertain the exact relative proportion of any disease at one time compared with another, or the exact relative diminution in the aggregate, correct knowledge of the total pop. at corresponding periods is requisite; but here, unfortunately, information entirely fails, prior to 1750, and partially so up to 1801.

In this same year (1832) occurred the first great outbreak of Asiatic Cholera in the U.K.; and as a consequence much attention was drawn to the necessity of a systematic regis. of the Causes of Death throughout the entire kingdom. [CHOLERA, ASIATIC.]

In 1834 a T. of the Causes of Death ["Disorders"] of all pol.-holders in the *Equitable So.* who had died between the years 1801 and 1832 was pub. by Mr. Arthur Morgan. This T., which constituted the first mortuary return of insured life, attracted much attention. We shall give the T. *in extenso* in our hist. of that So.

In 1836 we reach a new era. In that year was passed the 6 & 7 Wm. IV. c. 86—*The General Regis. Act*—under which it is provided (sec. 25) that the medical attendant of a deceased person is bound to give information, *if applied to within 8 days, with respect to the cause of death.* The measure was in itself very incomplete; but the able administration of the Reg.-General's Department, created by it, has done much to overcome the deficiencies of the enactment. It does not speak much for the sagacity of the then House of Commons, that the col. of the schedule headed "Cause of Death" was actually intro. by the House of Lords after the measure had passed the Lower House!

In 1837 a "paper" was circulated among the medical profession, in regard to the regis. of the "Causes of Death," from which we take the following passage:

We, the undersigned, [Henry Halford] President of the Royal College of Physicians; [Astley Cooper] Pres. of the R. College of Surgeons; and [J. Hingeston] Master of the Worshipful So. of Apothecaries, having authority from the several bodies whom we represent, do resolve to fulfil the intentions of the legislature in procuring a better regis. of the causes of death, being convinced that such an improved regis. cannot fail to lead to a more accurate statistical account of the prevalence of particular diseases from time to time. We pledge ourselves therefore to give, in every instance which may fall under our care, an authentic name of the fatal disease. And we entreat all authorized practitioners throughout the country to follow our example, and adopt the same practice, and so assist in estab. a better regis. in future throughout England. . . .

In 1839 the first Rep. of the Reg.-Gen. appeared, and therein was a letter from Dr. Farr—the first of that able series we have so often to quote in these pages—wherein he says:

The regis. of the causes of death, besides contributing to practical medicine, will give greater precision to the principles of physic. Medicine, like the other natural sciences, is beginning to abandon vague conjecture, where facts can be accurately determined by obs.; and to substitute numerical expressions for uncertain assertions. The advantages of this change are evident. The prevalence of a disease, for instance, is expressed by the deaths in a given time out of a given number living with as much accuracy as the temperature is indicated by a thermometer; so that when the mean pop. of a district is known, the rise and decline of epidemics may be traced exactly; and it will then be possible to solve the problem whether certain tribes of epidemic disorders constantly follow others, in one determined series or cycle. Loose phrases are still current for which numerical formulæ will be substituted. Sydenham, one of the most accurate of medical writers, in speaking of smallpox, employed such terms as these:—(1681) "It prevailed a little, but disappeared again."—(1667-9) "The smallpox was more prevalent in town for the first two years of this constitution than I ever remember it to have been."—(1670-2) "The smallpox arose: yielded to the dysentery; returned," etc. These terms admit of no strict comparison with each other: for it is difficult to say in which year the smallpox was most fatal, and impossible to compare Sydenham's experience thus expressed with the experience of other writers in other places and other ages—for "prevailed a little," "ragged with violence," and similar terms, may imply either that smallpox destroyed 1 or 2, or 5 or 10 p.c. of the pop. The superior decision of numerical expressions is illustrated by a comparison of Sydenham's phrases with the Lond. B. of Mort. in the same years.

The 2nd Rep. of Reg.-Gen., pub. 1840, contained a T., "being an abstract of the Causes of Death regis. in the several districts of E. and W.," while from this was deduced a further T., "showing out of a pop. of 1,000,000 of each sex the ann. mort. by 94 causes of death." There was also a T. "showing in 100,000 deaths, the number of deaths from each of 12 classes of causes in 25 divisions, and in all England and W." The 3rd and 4th Rep. contained T. of a somewhat analogous character.

In 1843 was pub. the 5th Rep. of Reg.-Gen., and therein was contained a series of very important obs. on the Causes of Death, of which the following is a summary:—

- 1.—Deaths in the metropolis at different ages from 94 causes.
- 2.—Deaths in the year 1840 in 24 town districts from 94 causes, and at 14 periods of life.
- 3.—Table showing out of 100,000 persons born in the metropolis the numbers dying from 94 causes at 12 periods of life.
- 4.—Table showing out of 51,023 males, and 48,977 females, the numbers dying from 94 causes at 12 periods of life.
- 5.—Table of the proportion of deaths in the metropolis at 12 periods of life, and from 94 causes.

Regarding T. No. 3 in this enumeration, we propose to offer some further details. The T. was based upon the returns of the Causes of Death in the metropolis in each quarter of 1842, at the same periods of life. The motive for constructing this T. is thus set forth by Dr. Farr, its compiler:

The chances of living or dying at any age or any time are shown by the life T. We know the amount of danger; and the next important practical inquiry is, "What is the *nature* of this danger?—What are the diseases or accidents which we have to encounter at birth, and at every stage of existence?" To assist in the solution of these questions the abstracts in pp. 272-323 have been framed. The T. (pp. 288-9) show the causes of death among males and females at 12 periods of life, in 24 town districts [TOWN DISTRICTS MORT. T.]; and the T. (pp. 272-287) the causes of death in the metropolis in each quarter of the year 1842, at the same periods of life.

As the diseases, particularly of early life, vary considerably from year to year, the obs. of several years will be required to furnish data for the construction of correct life T., in which the causes of

death at different ages are distinguished. But this subject is so important, and so little is known about it, that it appears desirable to attempt some approximate calculations with the materials at our disposal.

We are favoured with an insight into the mode in which the T. was constructed. From the abstracts made for the weekly T. of Mort. in 1842, it appeared that of 9759 deaths of boys under 5 years of age, 136 were by smallpox. By means of simple rule-of-three sum the proportion of deaths by smallpox out of the entire deaths under 5 was obtained. Again: of 30,878 males alive at age 20, 2779 died in the subsequent 10 years. The proportion of these deaths by phthisis [CONSUMPTION] was ascertained by the simple process just described; hence the "danger of dying by phthisis," *i.e.* the liability thereto, was deduced as being '047: so that of 1000 alive at the beginning of any year of the ages 20-30, about 4.7 would die from phthisis during that same year. From the ages 30-40 the "liability" was 5.3 p. 1000 p.a.; and during age 40-50 the "danger" was 6.6 in 1000 ann. "The mort. from the malady increases 1.75 p.c. ann.; 19 p.c. every 10 years of life, from the age 20 to 50." Dr. Farr continues:

Calculations of this kind have been made for 94 causes, at 12 periods of life. The Table (p. 376) showing, out of 100,000 deaths of males and of females at each period of life, how many happened from each cause: and the T. (pp. 304-7) the deaths from each cause, at the same 12 periods of life, out of 100,000 born at the same time. The numbers on the latter series of T. are the decrements of a quinquennial life T. up to 20, and of a decennial T. afterwards. If the causes of death were all correctly returned—and the obs. extended over a sufficient number of years—these T. would show the exact law which regulates the waste of human life in the metropolis. In their present form they afford much valuable information, and a more correct idea of the nature of the diseases incidental to the two sexes, at different ages, than can be obtained from any other source.

The following extract from the T. referred to is all that we can here furnish. It exhibits, out of 51,023 males born [the proportion of males out of 100,000 male and female births in 1842], the deaths from different causes, under the age of 5 years; 5 and under 10; 10 and under 15; 15 and under 20, etc. It also shows the relative danger of dying of any of the more common diseases:

Age	0	5	10	15	20	30	40	50	60	70	80	90
Living	51023	34358	32623	31904	30878	28099	24443	19635	13539	6973	1779	134
Dying from all causes in the next period	16665	1735	719	1026	2779	3656	4808	6096	6566	5194	1645	134
Smallpox	232	39	5	11	20	2	7	.....	.....	.....	.....	.....
Measles	1048	69	11	.....	.....	.....	.....	.....	.....	.....	.....	.....
Scarlatina	753	260	31	9	19	14	.....	14	.....	.....	.....	.....
Whooping Cough	1115	65	5	.....	.....	.....	.....	.....	.....	.....	.....	.....
Typhus	181	124	75	104	183	141	173	127	113	75	3	.....
Hydrocephalus	1482	141	24	7	2	12	.....	7	.....	.....	.....	.....
Apoplexy	31	9	4	2	19	73	142	295	308	265	46	4
Paralysis	10	6	4	.....	13	61	147	237	363	299	67	.....
Epilepsy	7	4	9	9	30	39	52	34	24	20	3	.....
Insanity .....	.....	.....	.....	.....	6	8	14	21	14	3	.....	.....
Delirium Tremens .....	.....	.....	.....	.....	11	39	57	31	14	3	.....	.....
Bronchitis	135	7	4	7	24	47	90	161	295	173	40	2
Pneumonia	2659	122	33	22	114	139	227	299	202	126	15	.....
Hydrothorax	17	4	4	.....	.....	16	24	62	96	48	12	.....
Asthma .....	.....	4	.....	9	22	96	206	529	685	309	43	2
Phthisis (or Consumption)	967	232	148	406	1438	1498	1611	1321	576	88	12	.....
Disease of the Heart	65	32	38	18	95	155	194	268	329	136	6	.....
Gastritis and Enteritis	487	58	22	35	41	39	66	96	99	34	6	.....
Hernia	5	2	4	2	7	8	19	21	31	20	3	.....
Disease of the Liver	24	4	.....	2	11	57	102	154	103	31	.....	.....
Disease of the Urinary Organs	12	4	11	7	20	47	95	172	230	126	40	.....
Disease of the Joints	22	32	20	18	32	25	14	17	17	3	3	.....
Dropsy	85	76	20	31	69	169	272	415	490	231	46	4
Cancer	9	6	2	.....	7	25	33	69	55	41	3	.....
Sudden Death	186	6	15	20	56	131	166	220	209	184	31	2
Violence	183	109	120	158	197	214	281	278	168	102	18	4

NOTE.—This T. applies to males only.

When we reflect upon the varying influences of seasons : of the prevalence of heat or cold ; of epidemics ; and of the other circumstances which influence mort. and disease ; the difficulties of the application of any such analysis to practical use will be found to be very great ; and this is prob. why Dr. Farr has only returned to this branch of the subject in a modified form. This was in the 30th Rep. of Reg.-Gen. pub. 1869. [See 1869.]

In 1845 was pub. officially, *Registration of the Causes of Death ; circulars to medical practitioners and to registrars ; a statistical nosology for the use of those who return the Causes of Death under 6 & 7 Wm. IV. c. 86. Circulars to coroners and a classification of the Causes of Violent Deaths.*

From this last, issued by the Reg.-Gen., we take the following passages :

It is believed that, although deaths by personal violence have diminished, poisoning, the violence called accidental, and the resulting dangers have increased within the present century,—which may be ascribed to the number of deadly poisons now so accessible in every chemist's shop, the introduction of the new force of steam, the redoubled activity of traffic, travelling, navigation, agriculture, manufactures, and mining operations. Science itself creates new instruments of death. But if these instruments be brought to light by your inquests, described accurately, and placed fully before the public, science will find no difficulty in discovering remedies, or rendering less harmful the new and striking, as well as the old and obscure, causes of violent death, which have made little noise, but have been in operation from time immemorial in every county in the kingdom.

It is to discover the dangers attendant on the occupations, pursuits, and various circumstances in which the pop. is placed, that I request your aid : in the hope that if the causes of death are ascertained, additional security may be thrown around human life, and thus the great object of the coroner's inquest be promoted by the Regis. Act.

The circumstances in which violent deaths happen are so various that it is impossible to suggest any rule for the regis. of every case ; but if the object of the "information" be kept steadily in view, little difficulty will be found in returning the "causes of violent death" in a manner sufficiently explicit and uniform to admit of comparison and analysis.

Dr. Farr says, in 13th Rep. of Reg.-Gen., pub. 1854 :

An inquiry into all deaths that were known, were suspected, or were from their nature likely to be caused by wilful, careless, or accidental violence, was instituted in the earlier ages, and it has ever since been found to be so advantageous to society that in England it has been continued in the coroner's court down to the present day. [CORONERS.]

About 1855 Mr. Robert Christie, Act. of the *S. Equitable*, pub., *A View of the Causes of Death regis. in E. and W. in the years 1848, 1849, 1850, 1851, 1852, 1853, and 1854, compiled from the Rep. of the Reg.-Gen. applicable to those years.* The accompanying is a summary of the results [Tables A, B, and C] :

A.—THE DEATHS FROM ALL CAUSES WERE AS FOLLOW :—

In the Years.	Males.	Females.	Total.
1848	202,265	196,268	398,533
1849	221,799	219,040	440,839
1850	186,284	182,318	368,602
1851	200,500	194,896	395,396
1852	207,042	200,093	407,135
1853	214,720	206,377	421,097
1854	222,422	215,483	437,905
Tot. in 7 Yrs.	1,455,032	1,414,475	2,869,507

B.—THE DEATHS FROM CLASSIFIED CAUSES WERE :—

DISEASES.	Males.	Females.	Total.	Mortality in each 100,000.
I. Zymotic Diseases.....	340,493	348,291	688,784	24,003
II. Diseases of uncertain or variable seat.....	57,002	80,767	137,769	4801
III. Tubercular Diseases.....	224,754	234,856	459,610	16,017
IV. Diseases of the Nervous System.....	186,137	159,954	346,091	12,061
V. Diseases of the Organs of Circulation.....	41,703	41,721	83,424	2907
VI. Diseases of the Respiratory Organs.....	183,232	155,018	338,250	11,788
VII. Diseases of the Digestive Organs.....	81,339	82,262	163,601	5701
VIII. Diseases of the Urinary Organs.....	18,719	5806	24,525	855
IX. Childbirth and Diseases of the Organs of Generation.....	125	22,482	22,607	788
X. Diseases of the Organs of Locomotion.....	9026	7841	16,867	588
XI. Diseases of the Integumentary System.....	3311	2234	5545	193
XII. Malformations.....	3120	2627	5747	200
XIII. Premature Birth and Debility.....	70,466	57,079	127,545	4445
XIV. Atrophy.....	41,160	41,477	82,637	2880
XV. Age.....	81,730	108,216	189,946	6620
XVI. Sudden (Disease unascertained).....	14,638	10,733	25,371	884
XVII. External Causes.....	71,289	27,617	98,906	3447
XVIII. Causes not specified.....	26,788	25,494	52,282	1822
Totals.....	1,455,032	1,414,475	2,869,507	100,000

Finally we have : [C.] "Statement exhibiting in decreasing numeral, order the Mort. applicable to each Disease, of 2,869,507 persons who died in the years 1848-54."

Diseases.	Mortality in Seven Years.	Mortality in each 100,000 Persons.	Diseases.	Mortality in Seven Years.	Mortality in each 100,000 Persons.
Phthisis	354,536	12,355	Brought forward...	2,734,279	95,289
Age	189,946	6620	Abscess	6970	243
Convulsions	167,952	5853	Pleurisy	6603	230
Pneumonia	154,391	5380	Violence	6336	221
Premature Birth and			Ulceration of Intes-		
Debility	127,545	4445	tines	6202	216
Typhus	124,915	4353	Disease of Organs of		
Bronchitis	120,729	4207	Generation	5111	178
Scarlatina	113,731	3963	Hernia	5068	177
Diarrhoea	106,967	3728	Infantile Fever	4860	169
Cholera	83,096	2896	Ascites	4834	168
Atrophy	82,637	2880	Gastritis	4750	165
Disease of Heart	77,198	2690	Syphilis	4533	158
Dropsy	70,866	2470	Remittent Fever	4393	153
Hooping Cough	61,144	2131	Pericarditis	4167	145
Apoplexy	56,198	1958	Wounds	4101	143
Hydrocephalus	54,345	1894	Want of Breast Milk	3833	134
Paralysis	53,546	1866	Nephria	3715	129
Causes not specified.	52,282	1822	Delirium Tremens	3619	126
Measles	48,799	1700	Insanity	3605	125
Cancer	36,782	1282	Rheumatic Fever	3420	119
Smallpox	36,490	1272	Quinsey	3026	105
Fractures and Con-			Poison	2992	104
tusions	33,241	1158	Phlegmon	2887	100
Tabes Mesenterica	32,632	1137	Diabetes	2832	99
Asthma	31,231	1089	Malformation	2574	90
Teething	30,702	1070	Ulcer	2251	78
Croup	28,033	977	Intemperance	2196	77
Enteritis	27,425	956	Aneurism	2059	72
Disease of Liver	26,571	926	Purpura	1841	64
Sudden	25,371	884	Intussusception	1726	60
Cephalitis	24,330	848	Stricture of Intestinal		
Disease of Brain	22,632	789	Canal	1720	60
Burns and Scalds	18,788	655	Cistitis	1638	57
Disease of Lungs	18,254	636	Spina Bifida	1580	55
Scrofula	18,097	631	Cyanosis	1593	55
Drowning	17,670	616	Stricture of Urethra	1589	55
Influenza	17,315	603	Gout	1525	53
Dysentery	16,489	575	Stone	1509	53
Diseases of Stomach	15,312	534	Ovarian Dropsy	1446	51
Childbirth	15,273	532	Disease of Skin	1406	49
Erysipelas	14,943	521	Nephritis	1336	47
Epilepsy	12,873	449	Carbuncle	1252	44
Disease of Kidneys	11,210	391	Ague	1246	43
Hepatitis	10,444	364	Tetanus	939	33
Hæmorrhage	9566	333	Noma	790	28
Peritonitis	9225	321	Paramenia	777	27
Mortification	9101	317	Fistula	708	25
Rheumatism	8883	310	Ischuria	696	24
Jaundice	8453	295	Cold	595	21
Thrush	8301	289	Privation	584	20
Hanging and Suffo-			Arthritis	489	17
cation	8277	288	Disease of Spleen	428	15
Ileus	7631	266	Chorea	397	14
Disease of Joints	7495	261	Neglect	293	10
Metria	7374	257	Hydrophobia	104	4
Laryngitis	7042	246	Disease of Pancreas	84	3
Carry forward	2,734,279	95,289	Totals	2,869,507	100,000

Dr. Farr said, in the 26th Rep. of Reg.-Gen., pub. 1856 :

The plan that is pursued in Geneva, in Brussels, in Paris, and in other cities, of appointing a medical officer to visit everybody, and to report independently on the *cause of death* to an appointed

health officer, who has thus the opportunity of comparing the certificates from two sources, is calculated to insure accuracy, and deserves to be adopted in towns. But in the country districts *economy of skilled labour* is indispensable. If there the sick poor, while alive, are inadequately supplied with medical advice and medicines, it is vain to expect that two skilled officers can be specially employed to find out the causes of death.

In the 18th Rep. of Reg.-Gen., pub. 1857, there was included under the head of "Occasional T." the following: (1) Causes of Death of males and females in England at different periods of life in the 7 years 1848-54; (2) Causes of Death of males and females in England at different periods of life in *each* of the 7 years 1848-54; (3) Causes of 2,869,898 deaths in England in the 7 years 1848-54, arranged in the order of mort. This was the first time the "Causes of Death" had ever been reviewed in this, or any other country, in a complete or continuous form. The results worked out much after the plan Mr. Christie had adopted, but on a far more elaborate scale. We observe also that there is a slight variation in the number of deaths from those shown by Mr. Christie. Some "correction" must have been made, of which the latter had not become aware.

In the quarter ending 31st March, 1858, there were 125,819 deaths regis. in E. and W. Of these 99,040 were certified as to the causes of death by the medical attendants; 5023 by the coroner; 7275 were not certified for want of medical attendance; and 14,481 were not certified from neglect or for some reason the nature of which is seldom indicated in the regis. Thus 83 out of every 100 deaths were certified either by the medical attendant or the coroner. Dr. Farr enlightens us further on the subject:

In 6 of the 17 cases uncertified there was no qualified medical attendant—for the certificates of quacks, druggists, herbalists, and such like practitioners were rejected by registrars in conformity with your [Reg.-Gen.] instructions. In 11 of the 17 cases the cause of death was *not certified* for unassigned reasons. It was in Wales and in Yorkshire that the people were left in the greatest extent without medical advice. In Lond. 97 p.c. of the deaths were certified, and only 1 p.c. of the deaths was returned as happening to a person left without medical advice. In a certain number of uncertified cases, such as deaths by smallpox, the causes were no doubt correctly reported by the informant on the verbal statements of medical men, from whom certificates were not obtained in time for regis.

In 1862 Dr. Fleming pub. his *Medical Statistics of L. Assu.*, wherein he shows the necessity for great care in returning the "Causes of Death," and furnishes an illustration in point:

That the progress of *Consumption* is often arrested by pregnancy is a well-established medical fact. When so, it generally runs a rapid course after parturition, and the cause of death is frequently ascribed to non-recovery from *childbearing*; whereas the patient had been suffering, for long before, from consumption, and died of that disease. As a general rule, it is necessary to ascertain exactly the particular circumstances connected with deaths reported in the family hist. of applicants to have taken place in or after childbirth.

Dr. Fleming, in the same work, gives the following T., showing the average duration of ins., the per-centage of deaths on the lives at risk, and on the deaths from all causes in the *Scottish Amicable So.*, in relation to each class of diseases, from 1826 to 1860:

Diseases.	No. of Deaths.	Average duration of ins.	Per-centage of deaths on lives at risk.	Per-centage on deaths from all causes.
Class.		Years.		
I. Zymotic	150	5'713	'2664	19'4049
II. Diseases of uncertain seat	30	7'222	'0533	3'8808
III. Consumption	107	5'331	'1900	13'8421
IV. Diseases of Brain and Nerves	130	8'538	'2309	16'8175
V. Diseases of Heart, etc.	67	9'053	'1192	8'6674
VI. Diseases of Respiratory Organs	78	8'089	'1386	10'0918
VII. Diseases of Digestive Organs	97	7'542	'1724	12'5485
VIII. Diseases of Urinary Organs	23	8'690	'0409	2'9752
IX. Childbed Diseases	3	3'166	'0053	'3880
X. Diseases of Joints and Bones	7	6'642	'0125	'9055
XI. Diseases of Integumentary Tissues	4	5'722	'0071	'5174
XII., XIII., and XIV., no deaths ... ..	...	...	...	...
XV. Gradual Decay	16	13'750	'0284	2'0698
XVI. Causes of Death uncertain	18	5'611	'0319	2'3285
XVII. Accidents	43	5'290	'0763	5'5626
Total	773	7'170	1'3732	100'0000

We learn from the 27th Rep. of Reg.-Gen. (1866), that there had been no essential change in the character of the returns of the causes of death since 1858. Dr. Farr says:

They are subject to two kinds of imperfection which it is necessary to distinguish. The first is in consequence of the imperfection of medical science itself, which will only diminish as that science advances. And the second arises from the imperfect practical application of existing science: only a portion of the pop. has the advantage of consulting the most skillful physicians or surgeons of the day, who are conversant with the newest discoveries in physic; and in the remoter parts of Wales, as well as in some English counties, the medical man lives so remote as to be absolutely beyond the reach of large numbers of the people. Many young children,—many long-afflicted men and women,—many old people die without having been seen for weeks before death by a surgeon. Many men die of hernia,

many women in childbed, who might be saved by surgical skill. Yet the medical attendance of the pop. is, I believe, better in England than it is in any other state of Europe; and the Poor Law does much to extend its advantages to the lowest classes. Where surgeons are not found in attendance on the sick, they should be supplied in some way; and if this were done, science might well be employed to inquire into the causes of deaths which it had endeavoured to prevent.

He adds :

Thousands of deaths occur without any scientific inquiry into the cause of death; and in thousands of other cases medical science seeks in vain to unravel the mystery which enshrouds the extinction of life.

In a paper by Dr. Arthur Ransome, of Manchester, read before the Social Science Congress in 1867—*In what respects do the Regis. Systems of England, Ireland, and Scotland need Improvement?* etc.—we find the following rather startling statements:

In the first place, the returns of certified deaths are very incomplete. The regis. of deaths is still not compulsory: it is left to all the uncertainty of voluntary service; and in consequence a very large proportion of deaths are not certified at all. It has been calculated by Dr. Farr, that in 17 p.c. of the total number of deaths regis. in E. and W., no clue is given to the cause of death; and in some districts it is stated, upon good authority, that the proportion of uncertified deaths is more than 70 p.c.

The certificates of the causes of death are often erroneous, either purposely, from carelessness, or from ignorance. *Without a proper inspection of the body of the deceased, it is sometimes impossible to state with any degree of prob. the immediate cause of death.* There is a strong prejudice amongst many people against *post-mortem* examinations, and, moreover, few medical men have either time or inclination to make them: this in itself would be a serious hindrance to obtaining correct returns: not only, however, is this a most common defect, but in some instances certificates are signed by medical men *when they have not seen the case before death; and sometimes when they have not seen the deceased either during the illness or after death.* Thus it often happens that a mere guess at the cause of death, whether prob. or improb., is allowed to take its place in what ought to be a record of well-attested and well-observed facts. Again, many persons are attended upon by ignorant or unqualified practitioners, *who are utterly unable to give a correct statement of the cause of death.*

The temptations also to make deliberately false returns are often very great. It is well known that ambiguous statements of the causes of death, or of the duration of the illness, are occasionally made by *qualified medical men, in order to escape troublesome inquiries on the part either of friends, or of ins. societies!*

There is indeed at present little or no security against directly fraudulent entries on the regis.; and it is believed that not a few crimes are allowed to pass undetected from the want of a proper supervision of certificates.

The influential position occupied by Dr. Ransome lends double force to his statements.

Dr. Farr says, in 30th Rep. of Reg.-Gen., pub. 1869:

The principles upon which the Causes of Death are tabled have been explained in previous Ann. Reports. It will be sufficient to state now that all the diseases, either having a distinct character, or fatal to any considerable number of persons, are classified under 114 heads; some of which, however, include groups of very distinct diseases,—such as are fatal to only a *few persons, or diseases* which are often confounded with other diseases. The rule has been to refer the distinct diseases to heads under which the cases were so numerous, that the additional numbers would not interfere with the calculated proportions. Where it is desired, partial correction, however, can now be made by means of . . . supplementary T., containing many of the deaths from distinct diseases, such as chicken-pox, mumps, epistaxis, dry gangrene, polypus, rickets, bronchocoele, etc., and deaths from other forms of disease, such as softening of the brain (necrencephalus), which are returned in many cases under other heads, as paralysis, etc.

Again:

Now when it is considered how multitudinous and complex the causes are, not of one phenomenon, but of the many phenomena of death,—for death has its many phases as well as life,—it can scarcely be surprising to find that out of nearly half a million of deaths no causes were assigned in 8000 or more instances. In 4630 cases no causes were specified; in 3506 cases it is only inferred that the deaths were sudden, as in them inquests were usually held.

Through the co-operation of the medical practitioners of E. and W., the majority of cases are certified on forms supplied by the Reg.-Gen. In Lond. about 93 p.c. of the deaths are certified, as far as the causes are concerned, by the medical attendants, 5 by coroners, leaving only 2 in 100 uncertified.

It will be convenient at this point to give an outline of the present classification of the Causes of Death as adopted by the Reg.-Gen. in his Reports. The scientific aspect of the subject will be spoken of under DISEASES, NOMENCLATURE OF.

The ordinary Causes of Death in E. and W. are arranged under 5 CLASSES, embracing 24 Orders, and 111 separate forms,—omitting “sudden deaths,” cause “not ascertained,”—as follows:—

Class I.—ZYMOTIC DISEASES, having 5 orders, and 29 forms, viz.—Order 1. *Miasmatic*, embracing smallpox, measles, scarlatina, diphtheria, quinsy, croup, whooping-cough, typhus, erysipelas, metria, carbuncle, influenza, dysentery, diarrhoea, cholera, ague, remittent fever, rheumatism; other Zymotic diseases (making 19). Order 2. *Euthetic*, embracing syphilis, stricture of urethra, hydrophobia, glanders (4). Order 3. *Dietic*, embracing privation, want of breast milk, purpura and scurvy, alcohol, (a) delirium tremens, (b) intemperance (4). Order 4. *Parasitic*, embracing thrush, worms (2).

Class II.—CONSTITUTIONAL, having 2 orders, and 9 forms, viz.—Order 1. *Dialthetic*, embracing gout, dropsy, cancer, noma, mortification (5). Order 2. *Tubercular*, embracing scrofula, tabes mesenterica, phthisis, hydrocephalus (4).

Class III.—LOCAL, having 8 orders, and 47 forms, viz.—Order 1. *Nervous System*, embracing cephalitis, apoplexy, paralysis, insanity, chorea, epilepsy, convulsions, brain disease, etc. (8). The last-named form, *brain disease*, is as it were supplemental to the other 7 forms; if all the deaths of this order were properly designated, this additional or popular head would not be necessary. The same circumstance will arise in other orders.

Order 2. *Organs of Circulation*, embracing pericarditis, aneurism, heart disease, etc. (3). Order 3. *Respiratory Organs*, embracing laryngitis, bronchitis, pleurisy, pneumonia, asthma, lung disease, etc. (6). Order 4. *Digestive Organs*, embracing gastritis, enteritis, peritonitis, ascites, ulceration of intestines, hernia, ileus, intussusception, stricture of intestines, fistula, stomach disease, etc.; pancreas disease, etc.; hepatitis, jaundice, liver disease, etc.; spleen disease, etc. (16). Order 5. *Urinary Organs*, embracing nephritis, ischuria, nephria, diabetes, stone, cystitis, kidney disease, etc. (7). Order 6. *Orders of Generation*, embracing ovarian dropsy, disease of uterus, etc. (2). Order 7. *Organs of Locomotion*, embracing arthritis, joint disease, etc. (2). Order 8. *Integumentary System*, embracing phlegmon, ulcer, skin disease, etc. (3).

Class IV.—DEVELOPMENTAL, having 4 orders, and 9 forms, viz.—Order 1. *Developmental Diseases of Children*, embracing premature birth, cyanosis, spina bifida, other malformations, teething (5). Order 2. *Developmental Diseases of Adults*, embracing paramenia, childbirth (2). Order 3. *Developmental Diseases of Old People*, designated generally old age (1). Order 4. *Diseases of Nutrition*, designated generally atrophy and debility (1).

Class V.—VIOLENT DEATHS, having 5 orders, and 17 forms, viz.—Order 1. *Accident or Negligence*, embracing fractures and contusions, gunshot wounds, cuts and stabs, burns and scalds, poison, drowning, suffocation, otherwise (8). Order 2. *Battle*, comprising deaths from warfare (1). Order 3. *Homicide*, embracing murder and manslaughter (1). Order 4. *Suicide*, embracing gunshot wounds, cuts and stabs, poison, drowning, hanging, otherwise (6). Order 5. *Execution*, comprising hanging (1).

SUDDEN DEATHS, cause not ascertained, makes an additional or supplementary head. Formerly there was another head, as Causes not specified or ill-defined. Since 1858 these have been spread *pro rata* among the other causes of death. They average about 5000 p.a.

Each of these classes, orders, and forms are spoken of under their proper alphabetical heads, and statistics are given concerning them.

In the 30th Rep. was contained (*inter alia*) the following T. :

I.—CAUSES OF DEATH REGIS. IN ENGLAND IN EACH OF THE TEN YEARS 1858-67.

Class.	CAUSES OF DEATH.	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867
	ALL CAUSES	449,656	449,781	422,721	435,114	436,566	473,837	495,531	490,909	500,689	471,075
	SPECIFIED CAUSES ...	449,922	432,476	414,060	427,360	429,000	465,874	487,732	482,509	492,111	462,939
	(CLASSES.)										
I.	Zymotic Diseases ...	110,971	106,645	75,849	87,986	91,539	119,731	118,825	113,948	115,972	99,989
II.	Constitutional " ...	82,416	81,788	82,088	84,987	83,024	84,393	87,190	88,504	89,907	89,423
III.	Local " ...	163,489	159,686	171,037	167,454	170,651	174,603	189,039	184,877	192,444	187,571
IV.	Developmental " ...	69,895	69,708	70,311	71,948	68,842	71,467	75,660	77,806	76,673	78,099
V.	Violent Deaths... ..	14,151	14,649	14,775	14,985	14,944	15,680	17,018	17,374	16,915	16,866
	(ORDERS.)										
I.	1. Miasmatic Diseases	106,278	101,699	71,304	83,324	86,881	114,538	113,051	107,650	110,059	84,985
	2. Enthetic " ...	1195	1273	1252	1355	1449	1578	1793	1914	1893	1909
	3. Dietic " ...	2112	2301	2206	2095	2149	2456	2810	2957	2888	2760
	4. Parasitic " ...	1386	1372	1087	1212	1060	1159	1171	1427	1132	1335
II.	1. Diathetic " ...	16,790	16,433	16,404	16,233	16,412	16,651	17,392	17,437	17,482	17,520
	2. Tubercular " ...	65,626	65,355	65,684	68,754	66,612	67,742	69,798	71,067	72,425	71,903
III.	Diseases of—										
	1. Nervous System ...	53,961	54,531	55,577	55,625	55,692	57,428	59,627	60,264	61,164	60,367
	2. Org. of Circulation	16,426	17,133	18,758	18,076	18,709	19,505	22,419	22,272	22,190	22,784
	3. Respiratory Org.	65,516	59,853	68,408	64,310	67,505	67,280	75,376	69,952	77,244	72,183
	4. Digestive Organs	19,246	19,842	19,718	20,327	19,421	20,516	20,969	21,774	21,084	21,006
	5. Urinary Organs ...	4683	4736	4990	5222	5328	5578	6104	6274	6621	6933
	6. Org. of Generation	1148	1199	1118	1129	1227	1219	1294	1241	1241	1316
	7. Org. of Locomotion	1164	1285	1466	1624	1588	1765	1860	1860	1642	1747
	8. Integumentary Sys.	1345	1107	1002	1141	1121	1312	1390	1240	1253	1235
IV.	1. Dev. Dis. of Child'n	12,412	12,300	12,706	13,116	12,787	13,498	13,921	14,360	14,634	14,666
	2. " " Adults	2114	2234	2233	2168	2198	2508	2607	2576	2596	2461
	3. " " Old People	28,509	27,104	28,442	27,373	26,780	27,268	29,498	28,709	28,546	28,646
	4. Dis. of Nutrition...	26,860	27,990	26,930	29,291	27,077	28,193	29,634	32,161	31,097	32,317
V.	1. Acci. or Negligen.	12,523	13,056	12,991	13,187	13,055	13,772	15,091	15,232	14,886	14,848
	2. Battle " ...	...	...	...	...	...	...	...	...	...	...
	3. Homicide " ...	344	338	377	320	418	399	412	443	480	392
	4. Suicide " ...	1275	1248	1365	1347	1317	1319	1340	1392	1329	1316
	5. Execution " ...	9	10	11	11	17	21	21	6	12	11
	Violent D. not classed	...	...	32	120	137	169	154	301	208	299
	Sudden Deaths, cause unascertained ...	3096	2821	2894	2697	2778	3008	3321	3173	3585	3506
	Causes not specified.	5638	5484	5767	5057	4788	4955	4478	5227	4993	4630

2.—MEAN ANN. RATE OF MORT. IN ENGLAND FROM EACH CLASS OF CAUSES AND FROM EACH CAUSE DURING THREE PERIODS OF FIVE YEARS; AND RATE OF MORT. IN THE YEAR 1867.

Classes.	CAUSES OF DEATH.	ANNUAL DEATHS TO 1,000,000 LIVING.				
		15 Years, 1850-64.	5 Years, 1850-54.	5 Years, 1855-59.	5 Years, 1860-64.	Year 1867.
	ALL CAUSES	22200·2	22299·3	22052·6	22248·7	21,983
	SPECIFIED CAUSES	21921·5	21877·3	21784·8	22102·5	21,818
	(CLASSES.)					
I.	Zymotic Diseases	5064·0	5234·1	5039·5	4899·3	4288
II.	Constitutional Diseases.....	4368·0	4598·6	4311·6	4194·0	4215
III.	Local	8148·8	7644·6	8124·4	8676·6	8840
IV.	Developmental	3595·1	3653·8	3568·4	3563·0	3680
V.	Violent Deaths	752·5	746·2	741·6	769·6	795
	Sudden Deaths, cause unascertained	177·2	207·2	178·2	146·2	165
	Causes not specified .....	.....	214·8	149·0	.....	.....
	(ORDERS.)					
I.	1. Miasmatic Diseases	4830·7	5019·2	4807·2	4652·8	4005
	2. Enthetic	62·3	51·5	61·7	73·5	90
	3. Dietic	106·7	97·6	106·0	116·4	130
	4. Parasitic	64·3	65·8	64·6	56·6	63
II.	1. Diathetic Diseases	877·8	943·6	863·6	826·4	826
	2. Tubercular	3490·2	3655·0	3448·0	3367·6	3389
III.	<i>Diseases of—</i>					
	1. Nervous System.....	2786·3	2777·0	2758·0	2823·4	2845
	2. Organs of Circulation..	824·1	700·0	803·6	968·6	1074
	3. Respiratory Organs	3111·1	2769·0	3155·2	3409·2	3402
	4. Digestive Organs	1015·8	1039·0	1005·0	1003·6	990
	5. Urinary Organs	229·4	190·6	227·0	270·6	327
	6. Organs of Generation..	56·5	52·4	57·4	59·6	62
	7. Organs of Locomotion..	72·4	66·2	68·2	82·6	82
	8. Integumentary System.	53·2	50·4	50·0	59·0	58
IV.	1. Dev. Dis. of Children.	995·6	1335·0	995·4	656·4	691
	2. „ Adults	117·6	128·0	108·0	116·6	116
	3. „ Old People	1437·0	1493·8	1431·0	1386·2	1350
	4. Dis. of Nutrition	1044·9	697·0	1034·0	1403·8	1523
V.	1. Accident or Negligence	691·8	696·2	694·8	677·0	700
	2. Battle .....	.....	.....	.....	.....	.....
	3. Homicide .....	.....	.....	17·5	19·2	18
	4. Suicide .....	.....	.....	65·0	66·6	62
	5. Execution .....	.....	.....	·5	·8	·5
	Other Violent Deaths not classified	26·8	50·0	22·7	6·0	14

NOTE.—In a certain number of cases in each year the cause of death was not stated. In calculating the proportional numbers, since 1855, they have been distributed *pro rata* over all the causes in the Table. The mean ann. mort. in the 15 years from all causes and from specified causes is the mean of the 3 quinquennial periods, and does not correspond exactly with the totals of the orders and classes; because under certain heads, for example, *Homicide*, *Suicide*, and *Causes not specified*, etc., the complete details cannot be given for the entire period. Order 2, Class V., comprising Violent Deaths in Battle, is omitted, as inapplicable to the civil population.

Dr. Farr says in 31st Rep. of Reg.-Gen. (pub. 1870):

I have discussed before the importance of getting the most accurate knowledge that can be obtained of the causes of death of the whole pop., in the letter which you did me the honour to pub. in the Appendix to your 27th Rep. [from which we have quoted]. And I endeavoured to show how that inquiry, which is merely an extension and a necessary complement of the inquiry by the coroner, instituted in the earliest ages of our civilization, may be conducted in a pure and simple method, by means which the advanced science of the present day places at our disposal. Under this system every death in which no sufficient certificate was given would be inquired into by a competent officer, who might, in many places, combine with this duty any other public office, such as health officer or coroner.

It is impossible to overrate the importance of this inquiry. It would detect crime, prevent crime; it would shield the helpless. It would bring to light the causes of disease, and might prevent the frequent recurrence of several deaths in the same house. It would remove a blot from our system of regis.; give value to the regis. certificate; lead to greater accuracy in the regis. records; and increase the scientific value of your Reports.

The Royal College of Physicians, Lond., has, with other medical bodies, from the first evinced its enlightened appreciation of the importance of this branch of regis.; and a Committee convened by it, of which Sir Thomas Watson was President, and Dr. Sibson was Sec., have prepared a nomenclature of diseases, which has been distributed to all the medical practitioners of the U.K. It only remains now to secure the universal application of the improved system by adequate administrative arrangements.

The subject of the scientific nomenclature of diseases will be discussed fully under DISEASES, NOMENCLATURE OF; while much that bears generally upon the causes of death will be found in our art. DISEASE.

Not only are the "causes of death" receiving such marked attention by scientific authorities, and by the Reg.-Gen. of E. and W.; but the Registrars for Scotland and Ireland are equally alive to the subject, as we shall show when we come to speak in detail of those countries. The good example is spreading further. In the U.S. much attention is now being paid to the subject, not only by the officials in the Census Office at Washington, but also by public officers in the various States. The difficulties there are much greater than with us; but with the able report compiled by Dr. H. B. Baker, M.D., of Lansing, upon the statistics of the State of Michigan at the Census of 1870, before us, the signs of the future are plain.

In 1870 the deaths in the *Mutual* of New York (an office having a larger number of lives at risk than any other in the world) were 470. The medical officers of the asso. made a careful investigation into the causes of these deaths, and reported the results as follow:

1. Zymotic diseases, 54; 2. Diseases of Nervous System, 82; 3. Respiratory System, 138; 4. Circulatory System, 30; 5. Digestive System, 52; 6. Genito-urinary System, 36; 7. Uncertain seat, 31; 8. Integumentary System, 6; 9. Diseases from external causes (Accidents, etc.), 38; 10. Age, 3; Total, 470.

The relative proportions from each cause were much the same as in previous years.

Of the deaths under the 9th head it would seem that the term diseases can hardly be properly applied, the total being made up thus: from suicide (said to be committed under temporary insanity), 5; from railroad, carriage, and runaway casualties, 12; from drowning, 2; from collision at sea, 2; from sunstroke, 2; from accidental poisoning, 2; from falling of floor of Court-house, Richmond (sort of special casualty), 4; and from falls, pistol-shot wounds, etc., 9.

During the year 1871, out of 247 deaths which occurred among the insured in the *New England Mut. L.*, of Boston, U.S.—a co. under sound management—the following were the causes:

Diseases of the Brain and Nervous System	43	Tumour	1
Diseases of Lungs and Air-passages	77	Carbuncle	1
Diseases of the Heart and Blood Vessels and of the Blood	23	Cholera	1
Diseases of the Digestive Organs	13	Scurvy	1
Diseases of the Liver	7	Neuralgia	1
Diseases of the Kidneys	5	Diabetes	2
Disease of the Bladder	1	Prostration and Debility	2
Disease of the Spine	1	Old Age	3
Fevers, etc.	17	Ulcerated Tooth	1
Deaths by Accident	20	Erysipelas	1
Deaths by Violence	9	Other Causes	5
Cancer	12	Total	247

The occupations of the above persons were as follows:

Merchants, Traders, and Brokers	75	Mariners	12
Mechanics	28	Gov. Officers	2
Clerks	22	Teachers	2
Manufacturers	10	Gentlemen	2
Farmers	12	Expressmen and Conductors	2
Bank, Ins., and Railroad Officers	10	Students	1
Physicians and Druggists	10	Editors	2
Agents, Superintendents, etc.	9	Professors	4
Lawyers	9	Miscellaneous	15
Clergymen	12	Total	247
Females	5		
Engineers and Mechanists	3		

The medical examiner of the Co. said hereon:

The large proportion of losses among active bus. men, "merchants, traders, brokers," is doubtless mainly referable to the fact that they ins. their lives more commonly than any other class. Still there is more than a suspicion that the intense and constant excitement to which they are exposed; the close application for long periods to bus., without intervening relaxation, in the ambitious race for riches; together with failures and reverses, and the only too common use of the spur of stimulation to the jaded powers, by ardent spirits taken on empty stomachs, have a little to do with the large death-rate.

The following T. gives the Causes of Death in E. and W. in the year 1870, arranged in the order of their fatality :

Causes of Death.	Number of Deaths registered in the year 1870.	Proportional Number from each Cause to 1,000,000 Deaths from All Causes.	Causes of Death.	Number of Deaths registered in the year 1870.	Proportional Number from each Cause to 1,000,000 Deaths from All Causes.
Phthisis... ..	54,231	106,106	Pleurisy	1034	2023
Bronchitis	46,699	91,369	Otherwise (Accident)... ..	986	1929
Scarlet Fever	32,543	63,672	Hernia	979	1915
Atrophy and Debility	30,528	59,730	Insanity	878	1718
Old Age	28,891	56,527	Dysentery	815	1595
Convulsions	26,548	51,943	Gastritis	803	1571
Diarrhea	25,311	49,523	Diabetes	735	1438
Heart Disease	23,957	46,873	Pericarditis	675	1321
Pneumonia	23,729	46,427	Ascites	664	1299
Whooping-cough	11,901	23,285	Nephritis	658	1287
Paralysis	11,651	22,796	Phlegmon	657	1286
Apoplexy	11,598	22,692	Aneurism	627	1227
Cancer	9598	18,779	Influenza	615	1203
Premature Birth	9195	17,991	Cyanosis	596	1166
Enteric Fever	8731	17,083	Hanging (Suicide)	583	1141
Measles	7543	14,758	Gout	475	929
Hydrocephalus	7423	14,523	Purpura and Scurvy	473	926
Tabes Mesenterica	6913	13,526	Other Malformations	449	878
Fractures and Con- tusions (Accident) }	6447	12,614	Spina Bifida... ..	435	851
Simple Continued Fever	5882	11,508	Cystitis... ..	415	812
Dropsy	5817	11,382	Skin Disease	399	780
Liver Disease	5658	11,070	Murder & Manslaughter	381	745
Brain Disease	5556	10,871	Ulcer	360	704
Lung Disease	5090	9959	Intussusception	356	697
Cephalitis	4944	9673	Alcohol (Del. Trem.)... ..	337	659
Croup	4302	8417	Cut, Stab (Suicide)	311	609
Teething	4183	8184	Alcohol (Intemperance)	308	603
Asthma	3894	7619	Drowning(Suicide)	297	581
Typhus Fever	3297	6451	Stricture of Intestines	268	524
Sudden Deaths	3180	6222	Other Violent Deaths }	258	505
Enteritis	3037	5943	(not classed)		
Stomach Disease	2833	5543	Poison (Accident)	234	458
Rheumatism	2791	5461	Ovarian Dropsy	224	438
Kidney Disease	2758	5396	Carbuncle	207	405
Scrofula... ..	2718	5318	Calculus (Stone)... ..	195	382
Diphtheria	2699	5281	Stricture of Urethra	190	372
Smallpox	2620	5126	Poison (Suicide)	151	295
Bright's disease(nephria)	2616	5118	Worms... ..	151	295
Epilepsy	2605	5097	Remittent Fever	145	284
Burns and Scalds (Acci.)	2578	5044	Otherwise (Suicide)	137	268
Drowning (Accident)	2504	4900	Quinsy	134	262
Childbirth	2383	4663	Gunshot Wounds (Acci.)	130	254
Erysipelas	2140	4187	Paramenia	127	248
Syphilis... ..	1858	3635	Ischuria	126	247
Peritonitis	1825	3571	Ague	120	235
Joint Diseases	1787	3497	Other Zymotic Diseases	115	225
Laryngitis	1740	3405	Fistula	114	223
Jaundice	1558	3048	Cancrum Oris (Noma)	106	207
Puerperal Fever (Metria)	1492	2919	Synovitis (Arthritis)	106	207
Mortification	1485	2906	Spleen Disease	97	190
Suffocation (Accident)... ..	1419	2776	Cut, Stab (Accident)	95	186
Want of Breast Milk	1402	2743	Privation	85	166
Hepatitis	1343	2628	Chorea... ..	76	148
Ileus	1267	2479	Gunshot W. (Suicide) .	75	147
Thrush	1203	2354	Hydrophobia	32	62
Uterus Disease	1074	2102	Pancreas Disease	15	29
Simple Cholera	1065	2084	Hanging (Execution)... ..	7	13
Ulceration of Intestines	1036	2027	Glanders	4	8

Note.—The causes of 4228 deaths in 1870 were not specified. In calculating the propor-

tional numbers in the above T., these deaths have been distributed *pro rata* over all the specified causes.

It will be seen from the foregoing that the causes of death may, for our present purposes, be classed under two heads: I. *Ordinary Causes*; II. *Extraordinary Causes*. The former is intended to embrace all those causes from which mankind die in the present age. These are spoken of under each of the heads included in the last T. The extraordinary causes of death are intended to embrace the past as well as the present; and will therefore include deaths from all or any of the following causes:

Black-death.	Mercantile marine.	Religious persecution.
Crusades.	Military service.	Sweating sickness.
Duelling.	Naval service.	Wager of battle.
Executions.	Plague.	War.
Famine.	Political crimes.	Witchcraft.

It cannot be said that the regis. of the causes of death has reached anything like perfection at the present time. The elements of uncertainty and indifference exist to too large a degree. The remedy will be nothing short of appointing a medical officer for each regis. district; without whose certificate that the cause of death has been ascertained, or is undergoing investigation, no funeral should take place. This same officer would also conduct the medical investigation necessary in the case of coroners' inquests. [CORONERS' INQUESTS.] [DISEASES, NOMENCLATURE OF.] [REGISTRATION.]

DEATH, CERTIFICATE OF.—See CERTIFICATE, etc. In Mr. Ikin's paper read before the Social Science Congress in 1864 [see DEATH CLUBS] occurs the following passage:

I fear some of our medical friends are often induced to sign certificates against their better judgment, merely to oblige; not of course from any criminal or selfish motive: but regarding giving a certificate for the registrar of deaths too much as a mere matter of form.

We can speak from a considerable practical experience on the subject. The loose system of signing certificates of the cause of death is one of the greatest abuses of modern times. It is a direct aid to the numerous frauds attempted upon ins. asso.; and without which the fraudulent design could not be advanced a single step.

Towards the close of 1867 it was found that fictitious or forged certificates of death were being issued, in respect of persons supposed to have died abroad. The Regis.-Gen. took very summary measures in view of repressing the practice. [DEATH, PROOF OF.]

DEATH, CHANCE OF.—See PROBABILITY OF DYING.

DEATH, CIVIL.—A law term. The state of a person who, though having natural life, has lost all his civil rights.

DEATH CLUBS.—These form a class of so-called benefit sos., mostly inrolled—when they have any legal constitution at all, which they frequently have not—under the F. Sos. Acts. The object of providing decent burial for the members—which is the ostensible object of these clubs—is commendable enough, and indeed laudable. This was one of the objects contemplated in the very dawn of F. sos.; but the practice has frequently degenerated into objects the most base. Decent burial is a characteristic of Christian communities; and anything to promote this object is deemed laudable. But if the inducements held out lead to the multiplication of deaths *for the purpose of obtaining the funeral allowance*, then the matter assumes another aspect. No one at all acquainted with the working of these sos. can have any doubt that the last-named object is too often the sole inducement to membership. The records of our criminal courts bear testimony; but their machinery is only invoked in extreme cases,—as in the Essex poisoning cases in 1848-9; and in the recent Durham cases, for which Mary Ann Cotton has suffered the extreme penalty of the law during the present year, 1873.

In 1864 this subject was brought under the notice of the Social Science Congress by Mr. J. I. Ikin, Surgeon, Leeds, in a paper: *On the Undue Mort. of Infants and Children in connexion with the Questions of Early Marriages, Drugging Children, Bad Nursing, Death Clubs, and Certificates of Death*. This gentleman addressed a series of questions on the subjects he proposed to discuss in his paper, to a number of his professional brethren in Leeds, occupying positions enabling them presumably to be well informed upon the points on which they were interrogated. On the subject before us his question was, "5. What is the effect in your opinion of the system of Death Clubs, especially the paying of an ins. on the lives of young children?" He gives us the substance of the replies he received, which did not come out "so strong" as he had anticipated:

Several of the gentlemen are of opinion that they are abused, especially as regards young children. From my own experience at the Women and Children's Hospital, I have no hesitation in stating that *the system of ins. children's lives is much abused; and great carelessness, if not positive crime, is committed. I would forbid by law the lives of young children being insured.* The careless manner in which medical certificates of death are furnished is another evil requiring a remedy. Parents bring their almost dying children to be seen once or twice at a public inst.; and then, on the death of the child, call for a certificate, though a week or more may have elapsed since the child was seen. I forbid parents bringing children to the Hospital as out-patients when dangerously ill; and when they cannot be admitted, I insist upon their calling in a medical man to attend, so that a certificate can then be legitimately furnished.

It would be well if medical officers of public inst. and others would be equally careful. [FRIENDLY SOS.]

DEATH DURING DAYS OF GRACE.—See DAYS OF GRACE.

DEATH FROM INTEMPERANCE.—This subject will be discussed in its moral, physical, and legal aspects under **INTEMPERANCE**.

DEATH, HOUR OF.—A writer in the *Quarterly Review* some years since gave the following curious particulars regarding the *hours most fatal to life*, or in less doubtful words, the hours at which the greatest number of deaths takes place. His obs. extend over 2880 deaths at all ages, with a mixed pop., and embraced a period of several years:

If the deaths of the 2880 persons had occurred indifferently at any hour during the 24 hours, 120 would have occurred at each hour. But this was by no means the case. There are 2 hours in which the proportion was remarkably below this—2 *minima*, in fact—namely, from midnight to 1 o'clock, when the deaths were 83 below the average, and from noon to 1 o'clock, when they were 20½ p.c. below. From 3 to 6 o'clock A.M. inclusive, and from 3 to 7 o'clock P.M., there is a gradual increase, in the former 23½ p.c. above the average, and in the latter 5½ p.c. The *maximum* of death is from 5 to 6 o'clock A.M., when it is 40 p.c. above the average; the next during the hour before midnight, when it is 25 p.c. in excess; a third hour of excess is that from 9 to 10 o'clock in the morning, being 17½ above. From 10 A.M. to 3 P.M. the deaths are less numerous, being 16½ p.c. below the average, the hour before noon being the most fatal. From 3 P.M. to 7 P.M. the deaths rise to 5½ p.c. above the average, and then fall from that hour to 11 P.M., averaging 6½ p.c. below the mean. During the hours from 9 to 11 o'clock in the evening there is a minimum of 6½ p.c. below the average. Thus, the least mort. is during mid-day hours, namely from 10 to 3 o'clock; the greatest during early morning hours, from 3 to 6 o'clock.

In 1861 Dr. J. C. Steele, M.D., Sup. of Guy's Hospital, Lond., read before the Statistical So. a paper: *Numerical Analysis of the Patients treated in Guy's Hospital for the last 7 Years, from 1854 to 1861*. [*Statist. Journ.* xxiv. p. 374.] The writer says:

In Table V. an attempt has been made to solve the question, whether death occurs more frequently at one period of the day than another. An idea prevails extensively that some law of periodicity influences the period of dissolution, and favours the supposition that the death-struggle terminates an hour or two after midnight; but the data recorded do not support this assumption. They rather lead to the inference that the death term is pretty equally distributed over the whole diurnal period; although it is interesting to note the fact that the hours of midnight and noon are less marked with fatal results than the others,—the proportion of deaths during those two hours not amounting to more than 115, or the 21'3 part of the entire cases.

In 1864 Mr. Alfred Haviland read before the Brit. Asso. at Bath a paper, *On the Hour of Death in Acute and Chronic Disease*, of which the following is an abstract:—The author had collected over 5000 cases of death, with the hour of death and other circumstances recorded, which he had tabulated and exhibited on a large chart. He showed in 1000 cases of death in children under 5 years, that the periods of the greatest mort. were between the hours of 1 and 8 A.M.; that an extraordinary depression took place during the next succeeding hours; between 9 and 12 P.M. the rate of mort. was at its minimum. He compared these statistics with 2891 deaths from all causes, and the chart showed how remarkably the wave-line coincided with those above. He then compared those diagrams with deaths from *Consumption*, which, although they showed a general resemblance to the wave-line, yet between the hours of 4 to 8 A.M. there was a depression, when compared with the first four hours' period. He contended that the T. on the chart proved the extraordinary mort. in the early hours of the morning, when the powers of life were at their lowest ebb, and, strange to say, when the patient was least cared for. He urged the necessity of feeding and supporting the patients at their weakest hour, so as to tide them over a critical period. He further urged his professional brethren to assist in recording data of a like nature.

As recently as 1872 we have had another series of obs., extending also to *births*. The registrar of Cumbernauld, Dumbarton, has been, as he says, curious to ascertain whether it is true that births and deaths occur more frequently in the night than in the day. Dividing the 24 hours into 4 periods of 6 hours each, he finds that among the 3600 people in his district there were 128 births in the year 1872, and that as many as 42 occurred between midnight and 6 A.M., and 31 between noon and 6 P.M., leaving only 28 and 27 respectively for the other two periods preceding midnight and noon. The deaths were otherwise distributed, the majority occurring in the daytime. There were 74 deaths in all; 22 between 6 A.M. and noon, and 20 between noon and 6 P.M., making 42 in the daytime, and leaving only 16 each for the two periods between 6 P.M. and 6 A.M.

DEATH IN VIOLATION OF LAW.—In the U.S. there is usually a condition in L. pol. to the effect that the pol. shall be void if the insurer dies "in the known violation of any law." This carries the exception much beyond "suicide, *felo de se*, or death by the hands of justice," as is usually found in our pol. In the case of *Cluff v. Mutual Benefit L. Ins. Co.*, before the Massachusetts Courts in 1868, it was held:

The condition that the pol. should be null and void among other grounds in case the insured should die "by the hands of justice or in the known violation of any law" of the state or country where he resided, or which he was permitted to visit, must be construed to refer to a *voluntary criminal act on the part of the insured, known to him at the time to be a crime against the law of such state or country*. Applying the maxim *nosce te sociis*, and remembering that such a clause ought not to be so interpreted as to work a forfeiture, unless that intention is apparent, as well as from the natural import of the words "known violation of law," we conclude that they do not extend to mere trespasses against property, or other infringements of civil laws to which no criminal consequences are attached.

It was held in the State of Missouri, in *Harper v. Phoenix Ins. Co.*, that the pol. was not rendered void where the insured was killed after voluntarily returning from an altercation which he had commenced, under circumstances which would make his slayer guilty of a felonious homicide. In another, and subsequent, case in the same State—*Overton v. St. Louis Mut. L. Ins. Co.*—it was held, that the pol. is not voided if the insured was

killed while in the lawful defence of his person, when there was reasonable cause for him to apprehend a design on the part of another to do him great personal injury, and also to apprehend immediate danger of such design being executed.

In the State of New York a more extended rule has been applied, in the case of *Bradley v. Mut. Benefit L. Ins. Co.* The pol. was upon the same life as in the case of *Cluff* versus the same Co., already reviewed. After deciding that, in the absence of evidence to the contrary, the law of Louisiana [where the death occurred] must be presumed to be the same as that of New York, the Court held, that the proviso is *not to be restricted to violations of the law which are criminal acts, but that it extends to all acts in violation of law which would naturally lead to a conflict by which life would be endangered.* This view was not sustained on appeal.

It seems clear that where this defence is set up, the burthen is on the co. to satisfy the jury that the act of the deceased which occasioned the death was a voluntary criminal act. *The co. must prove that the ins. died while engaged in a criminal act, known by him at the time to be a crime against the laws of the country where he was.*—Bliss, 1872.

DEATH, INSTANT OF.—See LIFE CLAIMS; LIFE PREMS.

DEATH, NOTICE OF.—In Life Ins. and in Accident Ins. it is of the utmost importance that early notice of the death of the insured be promptly communicated to the office. In *Accident Ins.*, where it is necessary to estab. the fact of death being the direct result of some particular injury, early notice is of especial importance; and any departure from the proper course must be regarded with suspicion. The subject has already been referred to under CLAIMS. [NOTICE.]

DEATH OF UNDERWRITER.—When the death of an individual underwriter, *i.e.* an underwriter trading on his own account, occurs, various questions more or less complex may arise. In the case of *Beckwith v. Bullen*, 1858, it was held, that there was no right either in law or in equity to set off a claim under a pol. effected by a broker against prems. due from the same broker to the executors of the underwriter, even although the circumstances are such as in case of bankruptcy would support a plea of mutual credit. A custom that in case of death of an underwriter the prems. should be retained till all the risks had run off, might give such a right. But the Court, when it had power to draw inferences of fact from the evidence, drew the inference that *such a custom did not exist at Lloyds.*

DEATH, PRESUMPTION OF.—From an early period the law has found it necessary to assume the death of an absent person after a certain number of years. The first enactment upon the subject is that of 1667—the 19 Charles II. c. 6—*An Act for Redress of Inconveniencies by want of proof of the deceases of persons beyond the seas or absenting themselves, upon whose Lives Estates do depend*, sec. 2 of which enacts:

That if such person or persons for whose life or lives such estates have been or shall be granted as aforesaid shall remain beyond the seas, or elsewhere absent themselves in this realm by the space of 7 years together, and no sufficient and evident proof be made of the lives of such person or persons respectively in any action commenced for recovery of such tenements by the lessors or reversioners; in every such case the person or persons upon whose life or lives such estate depended shall be accounted as naturally dead, etc.

But in the event of any such person so accounted dead afterwards returning, he was to be restored to the estate or interest of which in his absence he had been ousted (sec. 5).

In 1707 there was enacted the 6th Anne c. 18—*An Act for the more effectual discovery of the death of persons pretended to be alive, to the prejudice of those who claim estates after their deaths.* By this Act the provisions of the former Act were extended to minors and married women, etc., in favour of reversioners.

The principle laid down in these Acts regarding the holders of estates for lives, etc., soon became extended; and when it came to be usual to ins. the lives of nominees in leases, it followed almost as a matter of course, that if the life became “legally” dead, so that the lapsing of the lease or payment for fine on its renewal occurred, the life office which had undertaken the risk, in view of either of these contingencies, should be called upon to pay the money.

Life offices called on to pay under such circumstances not only have the benefit of all limitations regarding foreign residence, limits of travel, etc., but are entitled to demand security for repayment of any money paid, in the event of the life returning or being proved to be still alive. We do not think the office could claim the prems. accruing since the supposed death. The pol. would have been written off in the books of the Co.

It is clear that in all such cases of presumed death there must have been sufficient inquiry made. Thus *In re Creed*, 1852, where the arrival in New York of the person in question had been ascertained, the mere facts that he had not been heard of for 7 years, and that a letter addressed to him under an assumed name had not reached him, were held not sufficient to ground a presumption of death within 7 years, much less of any particular period of death.

It will be further seen that the legal presumption of death after 7 years’ absence by no means reaches the case of death at any specific period during that term. It merely goes to the fact that after the expiration of 7 years, and after reasonable inquiry made, death may be presumed. Cases however arise in which presumption of death at a specific period may be estab.; but in all such cases there must be evidence of the circumstances relied on.

Presumption of death frequently arises in relation to lives embarked on a sea voyage. In the case of *Patterson v. Black*, before the English Courts in 1780, the facts were as follows: The life of Maclean was ins. for one year, from 30th Jan. 1777 to 30th Jan. 1778. About the 28th Nov. 1777 he sailed from the Cape of Good Hope in the *Swallow* sloop of war, and was never afterwards heard of. The evidence of the plaintiffs included that of several captains of vessels who had sailed from the same place on the same day. They believed that the *Swallow* must have been as forward on the voyage as their ships on the 13th or 14th Jan. 1778, the period of a violent storm off the Western Islands. Their own ships with difficulty weathered the storm. The *Swallow* was smaller, and much less capable of doing so. Lord Mansfield said the question was whether Maclean died before 30th Jan. 1778. He left it to the jury whether, under all the circumstances, they thought the evidence sufficient to convince them that he did. If they thought it so doubtful as not to be able to form an opinion, the defendant ought to have their verdict. The jury found for the plaintiff against the insurers.

In all such cases as that last given, the fact that the marine underwriters had paid for a total loss of the ship would be regarded as strong evidence of the truth of the presumption.

In 1861 the principle involved in the Acts of Charles II. and of Anne received a confirmation, by 24 & 25 Vict. c. 100 (sec. 57), which deals with the crime of bigamy, and excepts from its provisions the case of "any person marrying a second time, whose husband or wife shall have been continually absent from such persons for the space of 7 years then last past, and shall not have been known by such persons to be living within that time." Under this enactment there arose in 1869 the case of *Reg. v. Lumley*. In a considered judgment, the Court held that it was a pure question of fact for the jury whether the first husband was or was not alive at the date of the second marriage, and that there is no presumption of law one way or the other in a case like this. This fact must be decided by reference to all the surrounding circumstances; and the jury must consider the time that has elapsed since the first husband or wife was last heard of, the then state of his or her health, etc. It is, however, always a mere question of fact—and it is of course for the prosecution to establish the fact—that the first husband or wife is alive, as otherwise they would fail to show that the offence of bigamy has been committed.

In 1870 a case came before our Court of Exchequer under the following circumstances. The action was brought by the assignee of a life policy for £200 effected in 1841 on the life of a Mr. Lacon, who went to France in 1853, leaving his wife and children behind him. He was taken ill, and his wife went to him, and remained some weeks, after which she returned to England, where she died the next year. Nothing had since been heard of Mr. Lacon, and it was presumed on behalf of the plaintiff that he was dead, and the money must be paid over. The co. contended that there was no proof of death. It was finally agreed that judgment should be entered for the plaintiff, on his undertaking to indemnify the co. against all future claims on this account.

In the U.S. the law is much the same as with us. The following summary we take from *Bliss, on the Law of L. Ins.*, 1872:

As to the date of death, the rule of common law is, that the presumption of life with respect to persons of whom no account can be given ends at the expiration of 7 years from the time they were last known to be living; and after that time the burden of proof is devolved upon the party insuring the life of the individual in question, who must prove him to be alive. But in any particular case the jury are at liberty, *from facts proved, to infer the death at any earlier period*; and among the facts which they may take into consideration are his age, situation, habits, employment, state of health, physical constitution; his position and intentions when last heard from; accompanied by evidence of inquiries at his last known residence, and among his friends. [DEATH, PROOF OF.] [SURVIVORSHIP, PRESUMPTION OF.]

DEATH, PROOF OF.—Before any death claim can be admitted by either a life or accident ins. co., satisfactory proof must be furnished to the office that the death has occurred *within the conditions of the pol.*

In ordinary cases where the death occurs in this country, a burial certificate will be required; and in most ins. offices an additional certificate, to be signed by the medical attendant of the deceased, stating the cause of death, and the duration of the illness. In lieu of an ordinary parochial burial certificate, a certificate under the General Registry Act may be obtained, on which it will be observed that the cause as well as the fact of death is certified by the medical attendant. When the death occurs in the British territories of India, certificate may be obtained at the India House. In the cases of military or naval persons in active service abroad, at the War Office and Admiralty. When death occurs in any of the colonies or in a foreign country, the best evidence to be obtained under the circumstances, and according to the custom of the country, should be furnished.—*Bunyon*.

The cause of death is required to be certified, as well as the event, and it is of general importance that in that respect the return should be as accurate as possible, as it enables offices to keep full records of their casualties, which will become, and has already proved to a certain extent, a most valuable source of statistical information. The primary object, however, in requiring the cause of death to be stated is,—1st, In order to ascertain that the particular disease did not exist when the assurance was effected, and had been

concealed. 2nd, In order to ascertain that the party did not die by his own hand or the hand of justice.—*W. T. Thomson*, "Proof-Sheets," 1856.

In many countries, as in France and some parts of Germany, very accurate official registers are preserved; certified copies of which, when duly authenticated, would be proper evidence to be given as to persons dying in those countries. In Ireland not unfrequently great difficulty is experienced in obtaining proper certificates in proof of age.

Most of the life, as also the accident, ins. offices supply the forms on which, or in conformity with which, the proofs are to be furnished. It would be well if the requirements of offices could be made uniform. Any demands, however, in such forms, which are not provided for by the conditions of the pol., cannot be maintained. This was so held in the case of *Taylor v. Aetna L. Ins. Co.*

Generally, it may be said, that in whatever form the requirement of proof contained in the pol. is, it is a condition precedent which must be strictly complied with; and where the liability to pay does not accrue till a time limited after such proofs are furnished, no action can be maintained until they are furnished, and the time limited has elapsed, unless there has been a waiver. Whether proofs are furnished "as soon as possible," is a matter for the jury; and the sufficiency of preliminary proofs, and what amounts to a waiver, are questions of law; but whether such proofs were furnished, and whether the acts were done which constitute a waiver, are questions of fact.—*Bliss*, 1872, p. 410. Again, unless the pol. requires it, it is not necessary to show to the Co. in preliminary proofs that the claimant had an insurable interest in the life insured. [CONDITIONS OF INS.] [NOTICE OF DEATH.] [PROOF OF CLAIM.]

DEATH, PUNISHMENT OF.—Death was ordained as the punishment for murder, according to Scripture record [*Gen. ix. 6*], 2348 B.C. Draco's Code, 621 B.C., punished every crime with death. Solon again limited it to murder, B.C. 594. In Gt. Brit. and most European countries the punishment of death was for many centuries very general for many crimes. *Russia* appears to have been the first European country to abolish death as a punishment; this was in A.D. 1742, under the Empress Elizabeth. In *France* the abolition was recommended by Murat in 1778; but was not then carried. In 1812 attention was drawn to the subject of the punishment of death for offences against the revenue. In 1820-3 the punishment was abolished in respect of numerous offences. 1824-9, still further abolished by the humane legislation of Sir R. Peel; so again in 1834-7. In 1864, by the Criminal Law Consolidation Acts, the punishment of death was confined to treason and wilful murder. In 1832 the law in *France* was modified. In 1865 capital punishment was much restricted in Italy. [EXECUTIONS.] [POPULATION.] [VIOLENT DEATHS.]

DEATH-RATE.—The measure of salubrity of any country is now tested by the *Death-rate* of its pop. Out of 100,000 persons born in any given year there will die in every year afterwards, until all have passed away, a certain proportion—that proportion is called the "Death-rate": for if the circumstances of the country be unfavourable to the duration of life, the ann. mort. will be considerable, and the total number will have passed away in what may be termed an early period; while if the circumstances be favourable to long life, a smaller number will pass away yearly, and a greater number of years will be occupied in the decrement of the whole: therefore the average of life will be proportionately prolonged.

A few figures, by way of example, may put the matter more clearly. For instance, it has been found by obs., based upon the actual mort. returns of the respective districts, that out of 100,000 children born in Surrey, 75,423 will be living at the age of 10 years, 52,060 at the age of 50, and 28,038 at the age of 70: while of a like number born in Liverpool, at the age of 10 only 48,211 will be living, being 27,212 less than in the case of Surrey; at the age of 50 there will be living 25,878, being 26,192 less than in Surrey at the same age; and at the age of 70 only 8373, as against 28,038 in Surrey. These obs. were taken nearly a quarter of a century since, and it is to be hoped that in the mean time sanitary science may have done something to remedy such glaring disparities.

Out of such obs., multiplied again and again, the exact per-centage of the deaths to the pop. of various countries and places—i.e. the Death-rate—has been determined. It constitutes a very easy method of comparing the salubrity of the different civilized parts of the globe.

According to Dr. Halley's *Breslau* Table, 1693, it appeared that a 34th part of all at 20 and upwards died every year in the city of Breslau.

According to Mr. Thos. Simpson's *London* Mort. T. (1742) a 29th part of the pop. of Lond. died every year. Other obs. about the same period confirmed this view.

Mr. Corbyn Morris, in his *Obs. on the past growth and present state of the City of Lond.*, pub. 1751, supposed that no more than a 60th part of the inhabitants of Lond. who were above 20 died every year; and from thence he concluded that the number of inhabitants was near a million. Dr. Price considered (1771) that in this supposition there was an error of at least one-half.

In the Dukedom of *Wurtemberg*, where, according to Sussmilch, the inhabitants were numbered every year, it appeared for an average of 5 years ending 1754, taking the towns and country together, that 1 in 33 died annually.

Mr. Milne, in his *Treatise on the Valuation of Annu., Assu.*, etc., pointed out that, the

whole of the army and navy being included in the pop., the ann. deaths in the returns should be augmented by the number that would take place among the soldiers and sailors abroad if they were employed in civil occupations at home, in order to obtain the true rate of mort.

In 1832 Mr. Marshall pub. *Mort. of the Metro.: a statistical view of the number of persons reported to have died of each of more than 100 kinds of Diseases and Casualties within the B. of Mort. in each of the 204 years 1629-1831*. He enters therein upon an elaborate inquiry, the statistics as furnished by the bills during the period named being before him; and arrives at the conclusion "not only how difficult it is, but how entirely futile it must be, to attempt to estab., with arithmetical precision, an exact scale of proportion which the deaths bear to the living, not only in the metro., but in any particular district where the facilities of intercourse and tendency to change of location so extensively prevail."

In a letter communicated to the *Assu. Mag.* [vol. iii. p. 255] by Herr Hopf of Gotha, he says that during the period 1816-43, the average death-rate was 2·886 p.c.; but the following fluctuations occurred: In one year the rate rose to 3·549 p.c.—that is, exceeded by 22·95 p.c. the average; while in another year the rate fell to 2·515 p.c.—that is, fell short by 12·87 p.c. of the same average. The births during the same period showed no such extreme fluctuations.

According to an investigation into the experience of the *Economic L.*, as shown by Mr. J. J. Downes, the Act. of the So., in 1857, the death-rate of that asso. had been equal to 95·44 p.c. of *Experience* Table No. 1; but only to 58·20 p.c. of *Northampton T.*

In the 8th ed. of the *Ency. Brit.* there was contained in art. *Mort.*, *Law of*, several T. of considerable interest; and although the data from which they were compiled is not explicitly stated, yet the high character of the work, and of its contributors generally, give them an implied authority. The following is drawn therefrom:

RATIO OF DEATHS IN EVERY 1000 OF THE NATIVE POP. PER ANN.

Montserrat	6·7	France	23·6
Tortola	9·6	Hierro	23·6
New Zealand	11·4	Lower Canada	23·9
South Australia	12·7	Isle of Bourbon	24·1
Western Australia	13·2	Barbadoes	24·2
Newfoundland	13·2	Malacca	24·3
Van Dieman's Land	13·3	Santa Maura	24·4
Ceylon	13·6	Upper Canada (Indians)	24·5
Ithaca	13·8	Switzerland	24·5
Norfolk Island	14·5	Lucca	24·6
Java	14·6	St. Christopher	24·6
Ireland	14·8	Canary	25·1
New South Wales	15·2	Belgium	25·2
Cerigo	15·5	Hungary	25·5
Bahama Islands	15·9	Carinthia and Carniola	26·1
Palma	17·3	Paxo	26·2
Venezuela	18·3	Gozo	26·3
Bermudas	18·5	Sierra Leone	26·3
Cape of Good Hope	18·7	Gomera	26·4
New Granada	19·2	Corfu	26·4
Cephalonia	19·3	Nevis	26·9
Lanzarote	19·3	Tyrol	27·1
Norway	19·5	Saxony	27·2
Portugal	20·0	White Russia	27·2
Fuerteventura	20·1	Holland	27·6
Transylvania	20·5	Malta	28·1
Madeira	20·6	Upper Austria	28·2
Denmark	21·1	Styria	28·2
Mecklenburg-Schwerin	21·1	Prussia	28·3
Teneriffe	21·1	N. Russian Provinces	28·9
French Possessions in India	21·2	Bohemia	29·1
Canary Islands	21·4	Sardinia	29·1
England and Wales	21·4	Moravia and Silesia	29·2
St. Helena	21·7	Naples	29·2
Scotland	22·2	Bavaria	29·2
Hanover	23·0	Baltic Provinces	29·3
St. Pierre and Miguelon	23·2	Tuscany	29·5
Dalmatia	23·2	Martinique	29·6
Sweden	23·3	Siberia	30·0
Ionian Islands	23·5	Illyrian Coast	30·1

Nova Scotia	30·3
Guadaloupe	30·5
Demerara	30·8
Lithuania	31·3
Venice, Province	32·2
Galicia	32·7
Lombardy	32·8
Franconia	33·0
Zante	33·1
Algiers	33·3
Moldavia	34·0
Wurtemberg	34·6
New Russia	35·4
Grenada	35·5
Lower Austria	36·5
Trinidad	37·1

Great Russia	38·1
Iceland	39·1
Military Frontier	40·0
Ural Provinces	40·1
Sicily	40·3
Little Russia	41·3
Volta and Caspian Provinces	41·8
Tobago	42·3
Mauritius	45·3
Dominica	46·2
Senegal	47·2
Honduras	57·8
Gambia	68·2
Azores, Oriental	28·9
Central	20·5
Occidental	102·8

DEATH-RATE OF WHITE RACES OF MANKIND IN FOREIGN COUNTRIES.

1. Residents.

Tobago	10·5
Cape of Good Hope	13·8
Van Dieman's Land (excluding Convicts)	20·1
St. Helena	21·7
Malta (British only)	22·5
Cumberland District, Australia (Roman Catholics)	22·5
New South Wales (with Convicts)	23·2
Ditto (excluding Convicts)	33·0
Cumberland District, Australia (Protestants)	26·1
Adelaide alone	27·9
Antigua and Montserrat	29·0
Malacca (Europeans)	30·0
Cape Town	31·3
Calcutta	35·1
Malacca (Portuguese descendants)	38·4
Barbadoes	39·5
Algiers	40·5
Mauritius (white & coloured pop.)	45·3
Honduras	57·8
New Orleans	73·7
St. Lucia	82·1
Calcutta (Portuguese and French descendants)	124·4

2. Troops.

New Zealand	11·4
Cape of Good Hope	13·7
New South Wales	14·0
Van Dieman's Land	14·0
Norfolk Island	14·5
Nova Scotia, New Brunswick	14·7
United States (North)	15·6
Canada	16·1
Malta	16·3
Bengal Civil Servants	21·1
Gibraltar	21·4
Newfoundland	22·0
Ionian Islands	25·0
Bourbon, Isle of	25·6
Mauritius	27·4

French Guiana	28·1
Bermudas	28·8
St. Helena	33·0
Norfolk Island (new Convicts)	33·0
Tenasserim	34·6
China (Chusan)	37·0
Madras (East India Co.'s Troops)	38·4
Antigua and Montserrat	40·6
Newfoundland	41·0
United States (Middle)	44·6
Madras (Queen's Troops)	48·0
United States (South)	48·5
Bombay (E. I. Co.'s Troops)	50·7
St. Vincent's	54·9
West Indies	55·1
Grenada	61·8
East Indies	68·9
Ceylon	69·8
St. Kitts, Nevis, Tortola	71·0
Bengal (E. I. Co.'s Troops)	73·8
British Guiana	84·0
Morea, Greece	84·6
Algiers	87·8
Bengal (Queen's Troops)	90·2
Guadaloupe	96·3
China (Hong Kong)	97·5
Martinique	100·4
Zealand	103·0
Bombay (Queen's Troops)	105·2
Honduras	103·0
Trinidad	106·3
Senegal	121·0
Jamaica	121·3
Spain (British Troops)	118·6
St. Lucia	122·8
Dominica	137·4
Tobago	152·8
Bahamas	200·0
China	285·0
Burmah	426·0
Sierra Leone	483·0
Cape Coast	668·0
San Domingo	943·1

In our art. ARMY we have been able to show a progressive diminution of the death-rate at many of the foregoing stations.

In the 16th Rep. of Reg.-Gen. pub. 1856, there is given a series of T. showing: (1) Density of Pop.; (2) Ann. Mort.; (3) Excess in the number of deaths over those that would have happened if the mort. had been 17 in 1000—the rate in the healthy districts of E. and W. Under DENSITY OF POP. we propose to give the main features of these T. We shall therefore only give here the following condensed summary of the death-rates during the 10 years 1841-50.

E. and W. is divided into 624 Regis. Districts :

In 3 Districts	the Ann. Mort. was	15 in every	1000 living.
" 14	" "	16	" 1000 "
" 47	" "	17	" 1000 "
" 87	" "	18	" 1000 "
" 96	" "	19	" 1000 "
" 111	" "	20	" 1000 "
" 90	" "	21	" 1000 "
" 48	" [and all England]	22	" 1000 "
" 26	" "	23	" 1000 "
" 29	" "	24	" 1000 "
" 24	" "	25	" 1000 "
" 18	" "	26	" 1000 "
" 13	" "	27	" 1000 "
" 18	" "	28 and	" 1000 "
		up to 36	" 1000 "
624			

It is thus seen that there were 64 districts then containing a pop. of about 1,000,000 in which the mort. did not exceed 17 p. 1000. The peculiar circumstances attending these particular districts will be noticed under HEALTHY DISTRICTS.

In 1860 Mr. W. Royston, of Manchester, read before the Manchester and Salford Sanitary Asso. a paper : *Variation of the Death-rate in England*. The author says :

In contrasting the mort. of different places many disturbing causes may arise. The most important is that which springs from the difference in the proportion of persons at the same ages ; because, if in one place we have a greater proportion of the pop. at those ages which are most healthy, as a matter of course the mort. in those places will be the lowest ; hence those towns that are sustained and enlarged by immigration will have a greater per-centage of the pop. at the healthy ages, which will tend to reduce the rate of mort. from what it would have been but for this immigration.

The author therefore proposes that instead of taking the gross mort. of a place, and comparing it with the total pop., more exact results may be arrived at by ascertaining the number of deaths occurring at the various periods of life, and comparing these with the pop. then living at the same ages. By this means those ages most affected by the influence of migration are separated from the rest, and a more accurate comparison can be made between the mort. of different places. [See 1863.]

In Mr. Samuel Brown's excellent paper, *On the Statistical Progress of the Kingdom of Italy*, read before the Statistical So. 1866 [vol. xix. p. 205], the following details are given :

Deaths.—The deaths [in 1862] in the whole kingdom, 681,212, were 351,890 males and 329,322 females —106'85 to 100—a little more than the ratio of births ; Lombardy showing the highest proportion, 108'7, and Tuscany the lowest, 102'6 to 100. Averaging 1000 in each month, August has the highest rate, 114'8 ; and April the lowest, 84'9. In town pop. the ratio of mort. was 3'37 p.c., in the rural communes 3'02 p.c. ; total 3'13 p.c.

Mr. F. Hendriks, in his able paper, *On the Vital Statistics of Sweden from 1749 to 1855*, read before the Statistical So. in 1862 [*Statist. Journ.* vol. xxv. p. 111], gives the following T. showing the *deaths* in relation to inhabitants, and in relation to births ; also deaths of females to males in the following countries :

Countries.	Years.	Number of Inhabitants to 1 Death.	Births including stillborn to 100 Deaths.	Deaths of Females to 100 deaths of Males.
Norway	1826-35	54'1	164	98
"	1836-45	55'7	156	96
"	1846-55	55'64	175	97
Denmark	1835-44	45'20	142	95
"	1845-49	44'13	141	95
Saxony	1845-49	33'25	135	94
Belgium	1841-50	44'02	125	101
France	1821-30	40'11	...	...
"	1831-40	39'71	...	...
"	1841-50	41'58	...	...
"	1851-53	43'0	...	...
Prussia	1816-49	33'91	139 born	94
"	1852	30'38	121 alive	101
Bavaria	1836-44	33'45	119	95
"	1845-51	...	123	96
Austria	1830-47	30'43	...	...
Hanover	1853	43'11	134 (born alive)	99
Baden	1830-55	34'26	...	95
Wurtemberg	1843-52	31'78	...	95
England	1838-52	45'0	...	...
Netherlands	1840-49	35'6	...	95
"	1850-53	40'4	144	96

In 1863 an Act was passed providing for the regis. of births and deaths in *Ireland*. The Act came into force in 1864. In the first quarter of that year there were regis. 28,540, being equal to an ann. mort. of 1 in 51 of the pop. It varied in the different provinces as follows: In Leinster 1 in 46; in Munster 1 in 51; in Ulster 1 in 50; and in Connaught 1 in 65. In the second quarter, ending 30th June, the deaths regis. were 24,448, being equal to an ann. ratio of 1 in 59. The death-rate in the different provinces was: in Leinster 1 in 65; in Munster 1 in 60; in Ulster 1 in 57; in Connaught 1 in 77.

In Dr. R. E. Scoresby-Jackson's paper, read before the Royal Soc. of Edin. in 1863, *On the Influence of Weather upon Disease and Mort.*, the writer says:

An inquiry into the casual relations subsisting between weather and disease is beset with a multitude of difficulties. In the first place, we ought not to attribute to the weather any effect upon the mort. of a given pop. until we have abstracted all other causes which might have operated in a similar manner, and to which such effect might altogether or in part be due: a task which is not very readily accomplished. Again, we cannot, if we would attain a rigid accuracy, attribute fluctuations in the death-rate to vicissitudes of the weather until we obtain a uniform climate over an entire area of obs., and this we shall never acquire. It may perhaps be objected to the results of my investigation, that it is not fair to apply the average of the climate of all Scotland to the death-rate of the 8 larger towns; that the towns have a climate distinct from that of the rural and insular districts; and that each town has one of its own. That is quite true; but it is an objection which may with equal propriety be urged against the application of the climate of any large town to the mort. of its several parishes, the particular climate of each of which may, and very often does, differ from that of its neighbour. But I prefer to consider the town districts alone, because it is in them that we meet with the mass of disease and the multiplied mort.; and as to applicability of the general climate to a local death-rate, we may regard it in this way,—that the climate of the towns is a climate within a climate; and that whatever difference there may be between the containing and the contained, any modification of the larger must in a corresponding manner affect, if not in degree, at least in kind, the smaller.

After a detailed investigation of many returns and obs. taken during the years 1857–62, the author arrives at certain conclusions:

It would seem then that over the whole year, and in the seasons of winter, spring, and summer, the relationship between the mean monthly height of the barometer and the death-rate is *inverse*; and that in autumn it is *direct*. And I think that although it is not a law without exceptions, there is an indication of a law, if the data be sufficient to determine it, of an increased mort. with a *low* barometer. But I must speak guardedly on this point, because the result of the inquiry differs from those obtained by many acute investigators. . . .

In a thoughtful paper, read before the Manchester and Salford Sanitary Asso. in 1863, by Dr. Arthur Ransome and Mr. Wm. Royston, these writers say:

There is one chief reason why we cannot, without further investigation, appeal simply to the death-rates of different places as tokens of their relative rank in the scale of health. *These places are not in the same position as regards the character of their pop.*

We will not now discuss the influence of particular employments, which more or less affect the public health in different localities; there is, however, another agency very frequently and actively at work, which introduces serious errors into any calculations based upon the gross rate of mort. This disturbing element is to be found in the migratory character of a large part of the pop. of our large towns; and it interferes with our calculations, both by altering the numerical proportions of the pop. at different ages, and by assigning the origin of diseases to the wrong sources. [EMIGRATION.]

The ages least affected by the migration of the pop. they consider to be from infancy to 15 years; and “whenever great accuracy is required, therefore, in comparing the mort. of different places, we propose to cut off entirely from the calculation those ages which are chiefly affected by migration, and to compare only the deaths under 15 years of age.” The following T. is prepared upon this plan:

Unions.	Pop. under 15 years in 1861.	Deaths under 15 years in 1861.	Rate per 1000.
Eastbourne	3969	66	16·8
Stafford	8221	162	19·7
Lancaster	12,686	270	21·2
Altrincham	14,251	349	24·4
Birmingham	87,533	2249	26·7
Carlisle	15,813	492	31·1
York	19,925	624	31·3
Wolverhampton	48,918	1618	33·0
Exeter	10,678	357	33·4
St. George (Hanover Square)	22,217	816	36·7
Sheffield	48,320	1918	39·6
St. George (East)	17,044	701	41·1
St. Giles	15,643	714	45·6
Preston	38,467	1797	46·7
Manchester	83,038	3946	47·5
Liverpool	87,774	4689	53·4

Dr. Ramsay, in his pamph. *On certain Fallacies in Local Rates of Mort.*, etc., 1871, has pointed out, that although this limitation may suit Manchester, it would not apply to Brighton, Cheltenham, and other places of resort for health and education; for in these towns the immigrants under 15 are prob. more numerous than at any other period of life,

owing to the existence therein of very large educational estab. He considered the method inefficient on other and more general grounds.

In 1863 Dr. Whitehead, M.D., pub. a pamph., *The Rate of Mort. in Manchester*. He advocates an entirely different method of measurement for ascertaining the rates of mort., viz. *that the number of deaths for every 100 births shall be assumed to be the death-rate*; and hence the proportion of deaths to births is made the measure of the salubrity of different places. The method appears to embody several fallacies. We shall speak of it more at large under HEALTHY DISTRICTS.

The 9th Rep. of the Reg.-Gen. for Scotland brought to a close a most interesting inquiry regarding the *influence of marriage upon the death-rate*. One short passage will show the result of the inquiry:—"It would appear, however, from the facts now adduced, that the effect of marriage in diminishing the mort. of males is much greater than could have been anticipated, and far exceeds any influence for good or evil which it has on females." [MARRIAGE, INFLUENCE OF.]

For the years 1863-4 we have, for the first time, some statistics of deaths in *Australia*, which appear to bear the stamp of authenticity. The Reg.-Gen. for *Melbourne* found the pop. of that city and its suburbs to be 114,000 in 1863. The deaths were 2340, giving a death-rate of 21·3 p. 1000. The city and suburbs were divided into 11 districts, and the death-rate varied in these from 27·3 (the highest) to 12·4 (the lowest). The deaths in the shipping district of Hobson's Bay were excluded from the above figures.

In 1864 records were taken for the city of *Sydney* and its suburbs. The pop. was found to be 43,625; the deaths were 833, giving a death-rate of 19·1 p. 1000. The city and suburbs were divided into 8 districts, and the death-rate varied in these from 29·5 (the highest) to 11·4 (the lowest).

Under BIRTHS we have already spoken of the birth-rate of these cities, which varied in a much wider range than the death-rate. But there was one feature common to each, viz.—that the *highest birth-rate and the highest death-rate were experienced in the same district*. The *Sydney* suburbs had on the whole a more favourable rate of mort. than those of *Melbourne*; but the rate of variation was greater. The *Melbourne Argus*, reviewing these figures (1865), said:

The disparity between the rates of mort. here and at home [England] . . . is not so marked [as in the case of the births]. The average death-rate in England for the 10 years 1853-62 was 22 p. 1000, and in Lond. 23·8 p. 1000; in the *Melbourne* suburbs it was 21·3, and in the *Sydney* suburbs 19·1 p. 1000. In no English county, however, did the death-rate rise higher than 24·4 p. 1000; while in *Sydney*, as we know, the highest rate was 29·5 p. 1000, and in *Melbourne* 27·3 p. 1000. On the other hand, in no English county did the death-rate fall so low as it did in some of the suburbs of the two Australian cities. Rural Surrey, which had the lowest birth-rate, had also the lowest death-rate, namely, 17·9 p. 1000; whereas St. Kilda and Brighton [in *Melbourne*] had one of 12 p. 1000, and St. Leonards (*Sydney*) one of 11 p. 1000. It would appear, therefore, that the mort. of the *Sydney* and *Melbourne* suburbs is more fluctuating than that of the English counties, where the difference between the highest and the lowest death-rate did not exceed 6·5 p. 1000; while the difference between the highest and lowest *Sydney* suburb was 18·1 p. 1000, and the difference between the highest and lowest *Melbourne* suburb 14·9 p. 1000. In England 17 p. 1000 is regarded as a sort of normal rate of mort.: that being the mean death-rate of all the healthiest rural districts. Three of the *Melbourne* and three of the *Sydney* suburbs have death-rates considerably lower than this; and doubtless if proper sanitary measures were adopted, many of the others might be reduced to equivalent figures.

Mr. W. L. Sargent, in an exhaustive paper, *On certain defects and results of the Reg.-Gen. Reports*, read before the Statis. So. of Lond. in 1864, and pub in vol. xxvii. of the *Journ.*, points out the injustice of comparing the death-rates of Birmingham and Lond. without reckoning the specific mort. according to age and class. He estimates a reduction of 1½ p. 1000 in the death-rate of Birmingham, supposing that its proportion of the affluent and educated were the same as that of Lond.

In *France* in 1864, out of 37,914,432 inhabitants, the deaths regis. amounted to 860,330, being in the proportion of 2·27 p.c.: a ratio above that of the two preceding years. In relation to the sex, the lower mort. pertained to the females, viz. 2·28 p.c. for the males; 2·23 p.c. for the females.

In a paper read before the Social Science Congress in 1865 by John Edward Morgan, M.D., *On the Danger of Deterioration of Race from the too rapid increase of Great Cities*, is given, with much other information of great interest, the following T.:

TABLE SHOWING THE DEATH-RATE IN PERSONS UNDER 15 IN FOUR CITIES.

Cities.	Number of persons under 15.	Deaths in persons under 15.		Death-rate p. 1000 under 15.		Average for the 2 years.	Death-rate p. 1000 living.		Average for the 2 years.
		1860.	1861.	1860.	1861.		1860.	1861.	
London... ..	926,904	30,208	32,646	32	34	33·0	22	23	22·5
Manchester	83,038	3230	3946	38	47	42·5	28	30	29·0
Liverpool	87,774	3619	4689	41	56	48·5	28	32	30·0
Birmingham... ..	67,533	2401	2849	35	43	39·0	22	24	23·0
Total... ..	1,165,249	39,458	44,130	36·5	45	40·7	25	27·2	26·1

TABLE SHOWING THE DEATH-RATE IN PERSONS UNDER 15 IN THE AGRICULTURAL COUNTIES.

Counties.	Number of persons under 15.	Deaths in persons under 15.		Death-rate p. 1000 under 15.		Average for the 2 years	Death-rate p. 1000 living.		Average for the 2 years.
		1860.	1861.	1860.	1861.		1860.	1861.	
Surrey	92,363	1919	1971	20	21	20·5	17	17	17·0
Kent	193,490	4157	5023	21	26	23·5	18	19	18·5
Sussex	131,501	2640	2540	20	19	19·5	18	18	18·0
Hants	159,564	3225	2990	20	18	19·0	19	17	18·0
Berks	74,150	1479	1421	19	18	18·5	19	18	18·5
Middlesex	66,755	1464	1404	22	21	21·5	19	19	19·0
Herts	65,826	1479	1299	24	21	22·5	19	18	18·5
Buckingham	54,819	1201	1489	21	27	24·0	19	20	19·5
Oxford	62,268	1289	1278	20	20	20·0	19	18	18·5
Northampton	84,349	2263	2271	26	26	26·0	21	21	21·0
Huntingdon	22,417	497	586	22	26	24·0	18	20	19·0
Bedford	52,518	1366	1247	26	23	24·5	20	19	19·5
Cambridge	66,652	1606	1886	24	28	26·0	19	21	20·0
Essex	142,355	2886	3916	20	27	23·5	18	19	18·5
Suffolk	124,172	2654	2910	21	23	22·0	19	20	19·5
Norfolk	150,262	3885	4361	15	29	27·0	21	22	21·5
Wilts	86,230	1664	1492	19	17	18·0	20	17	18·5
Dorset	64,920	1317	1132	20	17	18·5	18	16	17·0
Devon	201,735	4256	4216	21	20	20·5	19	18	18·5
Somerset	165,093	3097	3390	18	20	19·0	19	19	19·0
Gloucester	153,158	3269	3861	20	25	22·5	19	20	19·5
Hereford	36,155	655	734	18	20	19·0	19	19	19·0
Salop	91,107	2184	2284	23	25	24·0	21	20	20·5
Worcester	107,370	2395	2642	22	24	23·0	18	18	18·0
Rutland	8514	159	166	18	19	18·5	19	17	18·0
Lincoln	147,346	3444	3619	23	24	23·5	19	19	19·0
Westmoreland	21,683	431	394	19	18	18·5	19	17	18·0
South Wales	234,360	6548	6430	27	27	27·0	21	20	20·5
North Wales	147,104	3543	3543	24	22	23·0	22	20	21·0
Total	3,008,236	66,729	70,335	21·4	22·4	21·9	19·1	18·9	19·0

It will be seen that of the cities so called the death-rate was highest in Liverpool, where the average for the two years was 48·5; in Manchester it was 42·5; in Birmingham 39; and in Lond. 33. Of the counties, in Wiltshire it did not exceed 18; and in Berkshire, Dorsetshire, and Westmoreland it was 18·5. But as the circumstances seem particularly favourable in these four counties, we take the average for the 27 agricultural counties and Wales. In 1860 this average was 21·4; in 1861 22·4; the mean of the two years being 21·9: as against the average of the four cities—40·7. "It would thus appear (says the author of the paper) that the prospects of life are nearly twice as favourable to the dwellers in rural districts as to their brethren in the towns."

Mr. G. L. Saunders read before the Social Science Congress in 1865 a paper, *Causes of the difference existing between the Death-rates of Rural and Urban Districts, and, incidentally, of Sheffield*. The author, while admitting the great benefits conferred by the Reports of the Reg.-Gen. in placing before us the amount and the causes of disease and death, says: "But unfortunately these returns cannot point out the peculiarities of each district; and the averages of death are based upon the Poor Law Unions, so that little comparison can be made between one town and another." He further admits that as a general rule the returns correctly mark the progress of disease in the country, and "clearly exhibit the general causes of the rise in the death-rate." Then:

One great error, however, is to be found in these returns, and indeed in the writings of most sanitary reformers. . . . This error consists in the assumption that urban districts can, by the adoption of certain legislative sanitary measures, be made as healthy as rural districts: that is, that the death-rate ought to be no higher in the former than in the latter. But while society is organized as at present in our large towns—where men are compelled for a living to undertake labours injurious to life—where there are classes congregating together, lost in the depths of ignorance and weighed down by poverty—and where vice is rampant—it is quite useless to expect the inhabitants to be as healthy as those of villages. *It is certain that though the same public sanitary measures may be adopted in a town as in a village, there are in the former many causes of disease which are absent in the latter.* The populations of towns and villages are so differently circumstanced that it is quite impossible to equalize the death-rate. . . .

He then enters upon considerations of density of pop., etc., in support of his views. [DENSITY OF POP.] [TOWN LIFE.]

In 1865 the violent deaths in E. and W. were 17,374, being at the rate of 835 to every million of the pop. Out of a million of deaths from all causes, those from violence calculated on the same ratio would amount to 35,772.

In 1867 Dr. Arthur Ransome, of Manchester, read before the Social Science Congress a paper, *On the Registration Systems of England*, etc., wherein he says:

The death-rates are also affected not only directly by the importation or removal of healthy or diseased lives, but they are greatly injured as standards of comparison between different places, by inequalities in the proportionate numbers of the pop. at different ages.

It is not difficult to understand that owing to the very different expect. of life at different ages, any inequality between two places in the proportions of their pop. at different ages, will, of necessity, prevent safe conclusions as to their comparative healthiness from being drawn from their death-rates. The proportions of the pop. at different ages vary very greatly in different places, not only from the influence of unequal migration of the different ages, but also from the varying birth-rate.

A glance at the accompanying T. will show how very unequal are the birth-rates of different towns. There are many reasons why the birth-rate should vary, not only in different countries, from race, climate, etc., but also in the same country, and in different years, from the varied conditions under which the inhabitants live, and from moral, economical, or physiological causes quite apart from the salubrity of towns or the healthiness of inhabitants. It depends especially upon the number of marriages; and this again upon the proportion of individuals who are of marriageable age; upon the condition of trade; the plenty or scarcity of the necessities of life.

A large birth-rate almost always leads to a large death-rate; and since many of these deaths do not necessarily occur in consequence of the bad health of the parents, or of defective sanitary arrangements, it is impossible justly to compare places which are unequal in the relative proportion of births to pop.

Average Birth-rate to every 1000 persons living in the following Counties and Towns:

	1865.	1855-64. Average.
Surrey (extra-metropolitan) ...	31'3	29'9
Berkshire ...	32'0	31'3
Bedfordshire ...	36'5	34'6
Herefordshire ...	28'0	29'6
Staffordshire ...	41'1	41'1
Lancashire ...	37'2	37'3
Northumberland. ...	37'6	35'5
Durham ...	43'5	42'0
London ...	35'6	34'0
Manchester ...	36'7	..
Liverpool ...	37'5	..
Birmingham ...	41'6	..
Stockton ...	58'7	..
Wantage ...	30'1	..

The annexed is the Table referred to:

In 1868 Mr. Samuel Brown read before the Statis. So. a paper: *On the Comparative Pop. of European States* [Stat. Journ. vol. xxxi. p. 146]. This is a condensed translation of many of the more interesting features of vol. x. of *Bulletin de la Commission Centrale de Statistique*, compiled by M. Quetelet from materials supplied by the various European countries, and pub. by the Belgian Gov. in 1866. The vol. was submitted to the International Statistical Congress held at Brussels in 1867; and we may take this opportunity of saying that it is impossible to speak too highly of this publication, and of the manner in which its varying contents are brought together for future and permanent reference. The vols. are in the Library of the Statistical So. of Lond. We draw from Mr. Brown's paper some of the more interesting tables and facts relating to *Deaths*.

Table showing Number of Deaths in the Census Year, and Proportion to every 10,000 of the Pop. in the Census Year, and on an Average of Years, in the various Countries of Europe:

STATES.	Census Year.	Number of Deaths in the Census Year.			Deaths to 10,000 Inhabitants.		Years of Average.
		Male.	Female.	Total.	Census Years.	Average of Years.	
Norway	1860	13,889	13,509	27,398	184	171	1851-60
England	1860	186,459	182,527	422,721	211	210	1851-60
Sweden	1860	34,329	33,173	67,502	175	210	1856-60
Denmark	1859	29,303	27,270	56,573	217	214	1855-59
Belgium	1860	46,980	45,891	92,871	205	226	1857-60
Portugal	1860	37,815	39,001	76,816	208	.....	.....
Hanover	1858	22,148	22,041	44,189	234	227	1854-58
France	1860	393,381	388,254	781,635	209	232	1857-60
Greece	1861	12,041	10,928	22,969	210	.....	.....
Netherlands	1859	52,229	50,838	103,067	213	247	1850-59
Prussia	1861	259,941	240,700	497,641	269	262	1859-60
Austria	1857	521,758	495,269	1,017,027	272	275	1849-57
Spain	1861	215,198	202,566	417,764	267	276	1858-61
Saxony	1861	34,931	32,442	67,373	303	278	1859-61
Bavaria	1860	63,718	59,198	122,916	262	281	1851-60
Russia	1858	1,137,272	1,092,464	1,229,736	376	.....	.....

It appears from this T. that the total deaths in the census year were 5,048,000, on a total pop. of 217,725,000, or 232 in every 10,000 inhabitants. The fluctuations in a single year were considerable, —from 175 in Sweden to more than double, or 376, in Russia. But on an average of years the variations fell within narrower limits: from 171 in Norway to 281 in Bavaria. Russia did not give the means of comparison except for a single year; and it is more than prob. that the census of pop. was defective. England and Sweden occupy the second best position in the scale; Austria, Spain, Saxony, and Bavaria not differing much from each other at the opposite extremes.

The varying proportions of the deaths of the two sexes are shown in the annexed T.:

In his 30th Annual Report, published 1869, the Registrar-General gave the result of some important investigations into the results which influence the death-rate. Regarding "Locality," he says:

Male Deaths to 1000 Female:

	Census Year.	Average of a series.
Greece	1102	—
Saxony	1077	1076
Prussia	1067	1074
Spain.....	1062	1068
Austria	1053	1053
Denmark	1075	1051
Bavaria	1076	1043
Russia.....	1041	—
Sweden	1035	1032
Norway	1028	1028
England	1022	1026
Netherlands	1027	1016
France	1013	1011
Hanover	1005	1002
Belgium	1024	989
Portugal	970	—

The death-rates in English counties exhibit a range which is of considerable width. . . . Herefordshire attained the highest point of salubrity in the year [1867], and there the rate of mort. was as low as 16.50 p. 1000. Surrey in its extra-metropolitan parts was next, where the rate was 16.83 p. 1000. These furnish the only instances in which the rate was lower than 17.00. Rutlandshire, Huntingdonshire, and Dorsetshire produced death-rates varying from 17.65 in the first to 17.83 in the last. Lond. and Leicestershire experienced equal mort., namely 23 p. 1000. But all the highest rates occurred in the thick populations of northern counties, where children abound, and mining, manufactures, and traffic are fertile of accidents. In Durham county and the West Riding of Yorkshire the death-rate was 24.4; in Cumberland 24.78; in Northumberland 25.5; and it culminated in Lancashire, where it was 26.83. Such differences prob. are little if in any degree the effect of various climate. The people scattered at the foot of the Cheviots, and doubtless those of many rural spots in Lancashire, over which the smoky veil that wraps its large towns has not been drawn, are as healthy as the populations that breathe the warmer and milder air of the southern counties.

Regarding "Towns": Lond. and Bristol, in which the death-rate was 23 p. 1000, were the healthiest of the large towns in 1867. In Birmingham and Sheffield the mort. was above 24; in Hull 25. In Liverpool it was nearly 30; in Newcastle-on-Tyne nearly 31. In Manchester it was as high as 31.4. We next reach the "death-rates at different ages":

It was remarked above that the mort. of *males* exceeded the average, while that of *females* was below it. But this statement holds good not in the early periods of life but in the more advanced, as the following results will show. From birth to 5 years of age the death-rate of males was 67.98 p. 1000 against a mean rate derived from the returns of 30 years (1838-67) of 72.42. The death-rate of females at the same age was 58.41 against 62.46. At the age of 5 years and under 10, males died at the rate of 6.60 p. 1000, the mean rate being 8.79; and females at that of 6.29, the mean being 8.67. At the age 10-15 years the lowest mort. occurred; it was 4.07 in the male sex against the mean 4.95; and it was 3.91 in females against the mean 5.10. In the period 15-25 years the rate in males was 7.26, the mean 7.90; in females 7.33, the mean 8.22. In the period 25-35 years the rate in males was 10.80, the mean 9.93; in females 9.31, the mean 10.15. In the period 35-45 the rate in males was 14.34, the mean 13.03; in females 11.49, the mean 12.30. In the age 45-55 years the rate in males was 17.61, the mean 18.16; in females 16.10, the mean 15.67. In the period 55-65 years the rate in males 31.59, the mean 31.53; in females 31.14, the mean 28.56. In the period 65-75 the rate in males 78.91, the mean 68.54; in females 51.19, the mean 57.52. In the period 75-85 the rate in males rose to 157.44, the mean 147.74; in females it was 148.72, the mean 135.36. In the period 85-95 years the rate in males was 355.38, the mean 309.22; in females 209.25, the mean 283.07. At the age 95 and upwards men died at the rate of 521.54, the mean 446.87; while among women the proportion was 442.22; the mean being 432.05. Thus of persons living at this extreme age nearly a half sunk under the load of years. *From these facts it appears that the mort. of males in all the above quinquennial or decennial stages of life was higher than that of females, except in the period 15-25 years.*

The Reg.-Gen., in 1870, in view of some misapprehensions which had arisen regarding the death-rates of the pop., offered the following lucid explanation of the various points which arise regarding them:

The rate of mort. differs in a generation as it passes through different ages. It is in infancy very high, in boyhood very low; through manhood it increases, and as men descend into the vale of years is rapidly accelerated by the wearing away of vital force. The mean rate in Eng. has been for some years 22 ann. deaths to 1000 living of all ages. The rate for males is 183 in 1000 in the sixth year of life; only 18 in the fifth, six in the tenth, five in the 16th, eight in the 21st year of life, 13 in the 41st year, 19 in the 51st year, 33 in the 61st, 70 in the 71st, 153 in the 81st year, 307 in the 91st year of life. Infants and boys under 4 years of age experience a mort. above the average rate, and so do men of the age of 54 and upwards, while boys and men of 5 years of age and below 54 die at less than the average rate. In the country, in cities, under the same sanitary conditions, this universal law prevails; infants and old people die off more rapidly; boys and girls, as well as men and women in the prime of life, less rapidly than the average rates imply.

The general rates of mort., as they are usually given, may differ, therefore, in two populations, merely because the one contains more of the pop. under 5 and above 55 than the other. When the births exceed the deaths, the effect is to increase the number of children under 5 years of age; and it is conceivable that a novice in these inquiries may rush to the conclusion that the effect of an excess of births is to increase the general rate of mort., whereas it is found by obs. to have the contrary effect. The mort. of a pop. with an excess of births over deaths is lower than the mort. of a stationary pop. where the births and deaths are equal. And the reason on reflection is obvious. The births take place steadily year by year in a city, and if they are in excess of the deaths, they throw into it not

only additional children under 5 years of age, but also children and adults above that age, and hence there is less than the due proportion of old people in the whole pop.; hence also the mort. appears below what it would be in the same pop. under the same sanitary conditions, if the births and deaths were equal. In all Eng. the births are to the deaths as 3 to 2, and this has the effect of reducing the rate of mort. to 22 in 1000. By the *English Life Table*, in which the people of different ages are distributed as they would be if the births and deaths were constantly equal, the correct rate is found to be 24 in 1000. In Liverpool, where the rate of mort. was 34, the corrected rate was 39; in the same year the rate for Lond. was 24, the corrected rate 27.

Immigration has the effect of reducing the general rate of mort., as it swells the excess of persons at ages of low mort.

The rates of mort. as they are generally cited, when the pop. is accurately determined, are for all the cities in the weekly T. below the true rates; and when the differences in the rate in two cities are great, it is certain that this cannot be explained by any differences of the ages of the two pop.

A sustained rate of mort. above 17 in 1000 always implies unfavourable sanitary conditions; the Lond. rate of 24 is moderately good; any rate above 30 implies sanitary conditions highly destructive to human life. And when any city experiences a higher rate than the average, it should always be a matter of serious inquiry and concern to its citizens.

The considerations are finally epitomized into the following summary, which, while primarily intended as a key to the reading of the weekly bills, contain much that is valuable for continued reference:

1. These rates, calculated in the usual way, express facts; and higher rates than usual in a town show that, from some cause or other, the deaths are frequent, and *vice versa*.
2. These rates are below the true rates in all the towns of the U.K. in consequence of the great excess of births over deaths, which has the effect of increasing the proportion of the pop. living at ages when the mort. is below the average.
3. The excess of immigration over emigration operates in the same direction.
4. An excess of females in a town reduces its rate of mort.
5. There is an influx of patients into hospitals in towns, but this is probably more than counterbalanced by the retirement of consumptive immigrants into the counties of their birth to die.
6. A sudden and large addition of births in a single year would have the effect of slightly raising the general mort. in that year; but the supposition of such an addition in English cities is baseless; the law here is a constant excess of births over deaths, which keeps up a constant excess of young and middle-aged lives.
7. A life T. constructed in the usual way shows the true average rate of mort. and the mean duration of life, the two facts being indissolubly connected. The correct mort. of our worst cities was 1 in 15; in our healthiest districts it was 1 in 50; the duration of life was 25 and 50 years under the same circumstances.
8. A comparison of the true rates with the rates calculated in the usual way will show that the latter rates exhibit the relative fatality of different cities with sufficient accuracy for all ordinary purposes. They have no fallacious meaning.
9. Instead of reducing the death-rate of towns on the ground that their birth-rate is high, the reverse should be done to get the corrected death-rate.
10. The true death-rate in all England lies between the death-rate and the birth-rate calculated in the usual way; a sixth of the difference added to the death-rate is nearly its proper correction.
11. The causes of the differences of the rate of mort. are various, and in every case demand careful investigation on the spot by the town authorities.

The 33rd Ann. Rep. of the Reg.-Gen. [Abstracts for 1870] furnishes the following T., showing the ann. rate of mort. of males and of females in England, in each of the 33 years 1838-70; and proportion of male to female deaths:

Years.	Deaths.		Deaths of Males to 100 Deaths of Females.	Of equal Numbers living, the Number of Male Deaths to every 100 Deaths of Females.	Years.	Deaths.		Deaths of Males to 100 Deaths of Females.	Of equal Numbers living, the Number of Male Deaths to every 100 Deaths of Females.
	Of Males to 1000 Males living.	Of Females to 1000 Females living.				Of Males to 1000 Males living.	Of Females to 1000 Females living.		
1838	23'4	21'5	105	109	1856	21'4	19'7	104	108
1839	22'8	21'0	104	109	1857	22'6	21'1	102	107
1840	23'7	22'0	103	108	1858	23'9	22'3	102	107
					1859	23'3	21'6	103	108
1841	22'4	20'8	103	107	1860	22'2	20'3	104	109
1842	22'4	21'0	102	107					
1843	22'0	20'5	103	107	1861	22'7	20'6	104	110
1844	22'4	20'8	103	107	1862	22'5	20'5	104	110
1845	21'7	20'1	103	108	1863	24'2	21'9	105	110
					1864	25'0	22'6	105	111
1846	23'9	22'2	103	108	1865	24'6	22'0	106	112
1847	25'4	23'8	103	107					
1848	23'9	22'2	103	107	1866	24'7	22'3	105	111
1849	25'8	24'5	101	105	1867	23'1	20'6	106	112
1850	21'4	20'1	102	106	1868	23'2	20'8	106	112
					1869	23'7	21'1	106	112
1851	22'8	21'2	103	107	1870	24'3	21'6	106	112
1852	23'2	21'6	103	108					
1853	23'8	22'0	104	108	Average of 33 years 1838-70.)		23'3	21'5	104
1854	24'4	22'7	103	108					
1855	23'5	21'7	104	108					

The T. may be read thus:—In the year 1838 to every 1000 males living there were 23·4 deaths; to every 1000 females living there were 21·5 deaths; and to each 100 females who died there were 105 deaths of males. The last column shows the *relative* mort. of *males* and *females*; and that out of equal *numbers living* the deaths of males were as 109 to every 100 deaths of females in 1838.

The number of deaths regis. in 1871 was 514,879, or 450 less than were returned in 1870 out of a pop. which is estimated to have increased by 281,496 in the following year. The excess of births over deaths regis. in 1871 was 282,549; with the exception of the years 1867 and 1868, the greatest balance on the side of growth ever recorded in any year since regis. was instituted in this country. To every 1000 of the pop. there were 22·6 deaths in the year, the mort. having been slightly below the rate for 1870, while it was also a little above the average ann. rates in 34 years. Such average, represented by the mean of 34 ann. rates, was 22·4 p. 1000; in 16 years of lowest mort. since 1840 the average ann. rate was 21·5, in 14 years of highest mort. 23·4; the year 1871 approached more nearly to the high than to the low average. In the most unhealthy year (1849) of the series there was 1 death to every 40 persons living, in the healthiest year (1856) 1 in 49. Observation shows that the healthy and unhealthy years do not alternate singly, but mostly in groups of 3 or 4 years; a reason for this appears in the fact that the death-rate is to a great extent governed by the mort. from zymotic diseases, and that an epidemic of either of these commonly takes 2 or more years to run its course.

The death-rate varies with the different seasons of the year, as may be seen very clearly from the following:

Table showing the Number, and Annual Rate per 1000 Persons living, of Deaths in England during each Quarter of the Thirty-four Years 1838-71.

YEARS.	DEATHS.				ANNUAL DEATH-RATE.			
	In the Quarters ending the last day of				In the Quarters ending the last day of			
	March.	June.	Sept.	Dec.	March.	June.	Sept.	Dec.
1838	98,152	90,877	72,877	80,854	26·2	23·9	18·9	20·9
1839	89,740	87,969	76,280	84,995	23·6	22·8	19·5	21·6
1840	98,896	90,339	80,822	89,630	25·4	23·1	20·4	22·5
1841	99,069	86,134	75,440	83,204	25·4	21·7	18·8	20·6
1842	96,314	86,538	82,339	84,328	24·4	21·6	20·3	20·7
1843	94,926	87,234	76,792	87,493	23·7	21·5	18·7	21·2
1844	101,024	85,337	79,708	90,864	24·7	20·8	19·1	21·8
1845	104,664	89,149	74,872	80,681	25·5	21·4	17·8	19·1
1846	89,484	99,230	101,664	108,937	21·6	21·4	23·8	25·5
1847	119,672	106,718	93,435	103,479	28·5	25·1	21·6	23·9
1848	120,032	99,727	87,638	92,436	27·9	23·1	20·1	21·1
1849	105,870	102,153	135,227	97,589	24·6	23·4	30·6	22·0
1850	98,430	92,871	85,849	91,845	22·6	21·1	19·2	20·5
1851	105,359	99,458	91,499	99,080	23·9	22·2	20·2	21·8
1852	106,358	100,625	100,382	99,770	23·6	22·2	21·9	21·7
1853	118,119	107,647	92,201	103,130	26·1	23·5	19·9	22·1
1854	111,843	102,586	113,843	109,633	24·5	22·1	24·2	23·3
1855	134,542	106,493	87,646	97,022	29·1	22·7	18·4	20·4
1856	103,014	100,099	91,155	96,238	21·8	21·1	19·0	20·0
1857	108,665	100,046	100,528	110,576	23·0	20·9	20·7	22·7
1858	125,819	107,142	98,142	118,553	26·3	22·1	20·0	24·1
1859	121,580	105,631	104,216	109,354	25·2	21·6	21·0	22·0
1860	122,617	110,869	86,312	102,923	24·8	22·4	17·2	20·4
1861	121,215	107,558	101,232	105,109	24·5	21·5	19·9	20·6
1862	122,019	107,392	92,381	114,774	24·3	21·2	18·0	22·4
1863	128,096	118,121	112,504	115,116	25·2	23·0	21·7	22·2
1864	142,977	116,880	112,223	123,451	27·5	22·5	21·4	23·5
1865	140,410	115,892	113,362	121,245	27·0	22·0	21·3	22·8
1866	138,136	128,551	116,650	117,352	26·2	24·2	21·7	21·8
1867	134,008	112,355	108,513	116,197	25·2	20·9	19·9	21·3
1868	119,676	110,010	130,482	120,454	21·9	20·2	23·7	21·8
1869	133,096	118,947	114,644	128,141	24·4	21·5	20·5	22·9
1870	143,773	121,128	124,297	126,131	26·0	21·6	22·0	22·3
1871	138,393	120,793	121,332	134,361	24·7	21·3	21·1	23·4
Mean Annual Rate per 1000 in each Quarter.					25·0	22·1	20·7	21·9

[Note.—The rates in the last four cols. of this T. may thus be read without reference to the decimal

points: In the March quarter of the year 1838, to 10,000 of the pop. there were 262 deaths regis. A correction has been made in the calculations for the inequality in the number of days in the different quarters.]

The Reg.-Gen. in his 34th Ann. Rep. [abstracts, 1871] says:

The average ann. death-rate of 22·6 p. 1000 for the whole of E. and W. is the expression of a mean of rates differing widely: the range being greater or less, according as the units of comparison are large and comprehensive like the Regis. Divisions, or are selected for special representative purposes such as urban and rural, densely and sparsely populated, healthy and unhealthy places. Thus, the group of south-eastern counties forming the 2nd Regis. Division experienced in 1871 an average mort. of 18·8 p. 1000; while in the 8th division, which comprises Cheshire and Lancashire, the rate was 26·7. In 4 of the divisions, with an aggregate pop. in 1871 of 10,453,107, the mort. was above the average rate (22·6) for all E.; below in the remaining 7 divisions, containing 12,259,159 persons. The mort. in these great sections of the country remains tolerably constant on an average of years: the relative position of each division in the scale of high or low mort. being for the most part determined by the degree in which the component pop. are aggregated in large towns or dispersed over agricultural districts. In 10 out of the 17 divisions the mort. in 1871 differed to no appreciable extent from the average of preceding years; but in the tenth division there was a large increase, which is found to have occurred in the two counties of Durham and Northumberland, and to have been mainly due to a severe epidemic of smallpox.

The counties as units of comparison give a range of mort. in 1871 from 17·3 and 17·8 in the extra-metropolitan parts of Surrey and Kent to 27·5 in Lancashire and 28·5 in Durham. Sixteen counties have an average ann. death-rate below 20 p. 1000.

A more useful, because a more specific comparison than either of the foregoing, is that between pop. living under well-defined and opposite conditions, such as is obtained by contrasting the urban with the rural parts of the country.

This part of the subject will be treated under TOWN LIFE.

Dr. Ramsay, in his pamph. *On certain Fallacies in Local Rates of Mort.*, etc., 1871, says:

The death-rate, as now calculated, on the total number estimated or enumerated, of the existing pop., cannot be relied on as a test of vital force—unless (a) the number of immigrants and their average term of residence should balance the number of emigrants and their average term of absence; and unless (b) the proportion of the sexes living at each age, and the state of health and liabilities to disease, were the same among emigrants as among immigrants. . . . Death-rate comparisons, as they are now made, busy commercial and manufacturing towns, and the old cities and quiet country towns of Eng., are, for the above reasons, wholly inadmissible, and lead to most extravagant conclusions.

Again, treating of hospitals and other public institutions, he says:

My principal object in this section has been to show that the total sickness and general death-rate of a district are much aggravated by collecting a number of sick, hurt, infirm, ill-conditioned or otherwise miserable persons in any great building erected within its boundaries.

The Reg.-Gen. in his 34th Ann. Rep. [pub. Aug. 1873], but embracing returns of 1871—the Census year—says:

The most important deductions in my Rep. are drawn from a comparison of the regis. facts with the pop. enumerated; and having now determined by the analysis of the Census returns [1871] not only the numbers living, but their ages, I am able to show the mort. of persons of both sexes at 12 different groups of ages for each of the 34 years 1838–1871. *This is one of the most important series of facts relating to the life of a nation ever pub.*; and it is worthy of remark that the mort. at the several ages for the 34 years differs little from the mort. of the 17 years, 1838–54. The mort. of males at all ages was 2·33 p.c. in 1838–54, and 2·33 p.c. in 1838–71; of females for the same periods, 2·16 and 2·15.

The annexed is the T. referred to:

[*Note*.—The table may be read thus: Of males of the age 25 and under 35 the rate of mort. per cent. was 1·00 in 17 years 1838–54; and '99 in 34 years 1838–71, and so for other ages. The rates of mort. for 1838–54 are taken from the *English Life T.*; the rates for 1838–71 are the arithmetical means of the several rates for each of the 34 years, as shown in Tables of this Report.]

The mort. of males is greater than that of females in every one of these 12 periods of life except in the three extending from 10 to 35 years of age. The average ann. mort. of males of all ages in England in the 34 years is 2·33 p.c., but of females only 2·15 p.c. The mean lifetime of the English people is 40·86 years, or in round numbers 41 years; that is, the average number of years that people born in England live.

The following were found to be the death-rates in some of the principal American cities in 1871. New York, 28·6 p. 1000 inhabitants; Philadelphia, 22·9; Brooklyn, 25·9; St. Louis, 16·9; Chicago, 23·3; Baltimore, 26·7; Boston, 23·5; Cincinnati, 22·3; New Orleans, 29·2; San Francisco, 21·5; Buffalo, 13·9; Washington, 14·6; Newark, 23·7; Troy, 30·8; Memphis, 46·1; St. Paul, 15·3; Savannah, 36·6; Salt Lake City, 34·2; Vicksburg, 41·8. In Montreal, Canada, 36·9.

In the same year the death-rates were as follow in various European and Indian cities: Lond., 24·7; Liverpool, 35·1; Glasgow, 32·9; Paris, 54·7; Berlin, 38·9; Rome, 30·7; Bombay, 20.

*Ann. Mort. p. c. of Males and Females
in E. and W.*

Ages.	Males.		Females.	
	1838–54. (17 Years.)	1838–71. (34 Years.)	1838–54. (17 Years.)	1838–71. (34 Years.)
All Ages.	2·33	2·33	2·17	2·15
0–	7·25	7·26	6·23	6·27
5–	·92	·87	·91	·85
10–	·52	·49	·54	·50
15–	·82	·78	·85	·80
25–	1·00	·99	1·06	1·01
35–	1·28	1·30	1·27	1·23
45–	1·85	1·85	1·59	1·56
55–	3·18	3·20	2·82	2·80
65–	6·69	6·71	6·00	5·89
75–	14·76	14·71	13·44	13·43
85–	30·14	30·55	27·92	27·95
95 & upwards.	44·03	44·11	43·22	43·04

At the Social Science Congress, 1872, Dr. Acland, F.R.S., D.C.L., etc., delivered the address on *Health*. At the close of his paper is given the following simple yet expressive form of

Diagram to show the Proportion of Ann. Deaths p. 1000 of the Pop. [figures taken from Weekly Rep. of Reg.-Gen., 25th Oct. 1872] :

London	22
Portsmouth	25
Norwich	28
Bristol	19
Wolverhampton	21
Birmingham	27
Leicester	26
Nottingham	26
Liverpool	27
Manchester	30
Salford	24
Oldham	40
Bradford	22
Leeds	28
Sheffield	26
Hull	23
Sunderland	25
Newcastle-on-Tyne	29

Foreign Cities.

Bombay	31
Madras	42
Paris	22
Brussels	25
Berlin	37
Vienna	35
Rome	39
New York	28

From the "Ann. Summary" of the Reg.-Gen. for 1872 we draw the following most important details regarding the death-rate of Lond. and 17 other large cities and towns :

ANALYSIS OF THE MORT. IN 18 OF THE LARGEST ENGLISH TOWNS IN 52 WEEKS
ENDING 28TH DECEMBER, 1872.

Cities, Boroughs, etc.	Ann. Death-rate p. 1000 from all Causes.	Ann. Death-rate p. 1000 from 7 principal Zymotic Diseases.	Per-centage of Deaths under 1 Year to Births regis.	Per-centage of Deaths to Total Deaths.					
				Under 1 Year of Age.	At 60 Years of Age and upwards.	From 7 Zymotic Diseases.	From Violence.	Regis. upon In- formation of the Coroner. (Inquests.)	Regis. in large Public Institutions.
Total in 18 large towns	23·7	4·8	17·5	27·6	18·5	20·4	3·6	6·3	13·8
London	21·4	3·8	15·9	26·3	19·8	17·9	3·7	6·8	16·9
Portsmouth	22·9	7·2	14·6	21·3	16·8	31·3	2·3	4·3	12·8
Norwich	26·3	7·5	21·0	25·4	25·1	28·6	2·3	4·5	9·4
Bristol	22·0	3·6	15·1	24·3	22·7	16·4	4·3	6·5	14·9
Wolverhampton	25·9	6·3	17·6	26·5	17·9	24·3	3·1	4·0	12·7
Birmingham	23·0	5·5	16·6	29·1	16·6	23·9	5·0	8·9	12·0
Leicester	26·8	7·7	22·8	35·0	17·5	28·9	2·0	3·7	7·3
Nottingham	25·3	5·1	20·7	27·9	20·4	20·1	1·8	4·8	14·2
Liverpool	27·1	5·7	22·2	31·7	20·3	21·0	5·0	6·7	13·8
Manchester	28·6	5·7	19·1	26·6	15·4	20·1	3·3	7·5	14·0
Salford	25·8	5·2	17·3	28·3	15·3	20·0	3·3	6·0	7·8
Oldham	31·1	9·6	17·8	22·4	12·8	30·9	2·0	4·1	4·9
Bradford	26·3	5·1	19·7	30·0	13·5	19·3	2·5	3·5	6·7
Leeds	27·9	6·2	21·2	31·3	16·3	22·4	2·6	4·1	8·4
Sheffield	26·0	7·0	18·5	28·7	13·7	26·8	2·5	3·9	8·4
Hull	26·1	6·5	20·4	30·5	18·0	24·9	3·7	4·1	8·6
Sunderland	26·5	5·2	17·7	29·6	17·1	19·7	3·9	4·6	7·7
Newcastle-on-Tyne	26·3	4·5	17·7	27·0	18·0	17·1	4·9	6·7	11·5

Regarding Lond. itself, the following T. of additional details is given. This is prob. the most exhaustive analysis of mort. ever applied to any city.

ANN. RATE OF MORT., 1840-1872, IN LONDON AND FIVE GROUPS OF METROPOLITAN DISTRICTS.

	LONDON.	West Districts.	North Districts.	Central Districts.	East Districts.	South Districts.
Area in Square Miles	122.0	16.8	21.0	3.5	9.3	71.4
Decennial Increase of Pop. p.c., 1861-71	16.1	22.5	21.6 {	-12.8 (decrease)	11.9	25.2
Enumerated Pop. 1871	3,254,260	561,359	751,729	334,369	639,111	967,692
Density; persons to an acre 1841	25	27	28	172	66	11
to an acre 1871	42	52	56	150	107	21
Years.	MEAN RATE OF MORT. PER 1000 IN 33 YEARS.					
1840-1872	24.3	22.7	22.9	25.2	26.0	24.5
	Means of 10 Years.					
1840-9	25.2	23.5	23.1	25.1	26.6	26.6
1850-9	23.6	22.3	22.1	24.2	24.9	24.4
1860-9	24.3	22.6	23.4	26.5	26.8	23.2
	Means of 5 Years.					
1840-4	24.4	23.3	23.1	24.6	25.5	24.9
1845-9	25.9	23.7	23.1	25.6	27.7	28.2
1850-4	24.2	22.8	22.0	24.3	25.2	25.8
1855-9	23.1	21.9	22.1	24.1	24.6	22.9
1860-4	24.1	22.8	22.9	26.4	25.9	23.3
1865-9	24.5	22.3	23.9	26.5	27.6	23.2
	ANNUAL RATE OF MORT. per 1000.					
1840... ..	25.0	24.1	23.9	24.5	25.7	25.9
1841... ..	24.0	22.4	22.4	25.0	25.1	24.4
1842... ..	23.5	22.6	22.6	23.6	24.4	23.9
1843... ..	24.7	23.3	23.1	25.3	26.4	24.8
1844... ..	25.0	23.9	23.3	24.4	25.9	25.6
1845... ..	23.2	22.5	21.0	24.0	24.6	23.8
1846... ..	23.3	21.6	21.9	22.9	24.1	24.6
1847... ..	27.0	24.5	25.4	27.9	29.4	27.7
1848... ..	25.8	23.6	23.4	25.3	28.7	27.2
1849... ..	30.1	26.1	23.7	27.9	31.8	37.6
1850... ..	21.0	19.6	19.8	21.1	21.7	21.9
1851... ..	23.4	22.0	22.2	24.1	24.3	24.0
1852... ..	22.6	21.5	21.2	23.9	23.3	23.0
1853... ..	24.4	22.3	22.4	25.1	26.5	25.3
1854... ..	29.4	28.5	24.4	27.4	30.0	34.8
1855... ..	24.3	23.0	23.3	25.1	25.5	24.6
1856... ..	22.1	21.5	21.1	23.0	23.3	21.8
1857... ..	22.4	21.2	21.5	23.8	24.6	21.5
1858... ..	23.9	22.4	22.9	24.5	25.8	24.0
1859... ..	22.7	21.4	21.7	24.1	24.0	22.6
1860... ..	22.5	22.2	21.2	23.3	24.1	22.1
1861... ..	23.2	22.1	22.3	25.4	24.0	22.8
1862... ..	23.6	22.0	22.0	26.3	26.0	22.7
1863... ..	24.5	23.0	23.8	27.1	26.5	23.3
1864... ..	26.6	24.6	25.4	30.0	29.0	25.4
1865... ..	24.6	22.7	24.5	27.5	26.4	23.2
1866... ..	26.5	22.6	25.3	27.5	34.0	24.1
1867... ..	23.0	21.8	23.1	25.1	24.2	22.0
1868... ..	23.6	22.3	22.9	25.6	25.6	22.9
1869... ..	24.6	22.2	23.5	26.8	28.0	23.9
1870... ..	24.1	23.8	23.6	26.1	25.1	23.5
1871... ..	24.6	22.4	25.6	25.0	26.1	24.0
1872... ..	21.4	19.5	21.1	23.4	23.5	20.7
Average No. living to 1 } Ann. Death in 33 years }	41	44	44	40	38	41

[*Note.*—The pop. upon which these rates of mort. have been calculated are deduced from the numbers enumerated at the four censuses of 1841, 1851, 1861, and 1871. The deaths used for the 32 years 1840–71 are for the complete years, while those for 1872 are the numbers regis. in the 52 weeks ending 28th Dec. in that year; the 1872 rates have not been corrected for the difference between 365·2422 days and the 364 days included by those 52 weeks. Certain alterations affecting the West and Central groups of districts were made in the year 1868, but no corrections have been made in the results given in this T. for any year prior to 1861.]

The Reg.-Gen. says regarding this last T. :

Some disappointment may be felt that the mort. of Lond., which should be below 20, has not descended permanently to that rate: the reason is too obvious, *for the water supply is still drawn from the stream of the upper Thames, which drains a populous basin, and receives much of its impurities.* Then it has been shown that although the main sewers have been well laid, the branch sewers, under the district boards, are still imperfect; they are in places ponds of impurities, as Dr. Hardwick and others have discovered by inspection, even in the West End of London. Fine old houses have had vast cesspools laid in the preclaoal age; and those cesspools in many cases remain undisturbed, exhaling their fumes through the air. The London Building Act, in some respects worse than the Sanitary Acts applying to country districts, has no adequate clauses to provide for the effectual purity of the new dwellings erected. There is still a want of thoroughness in the London sanitary work, accounting fully for the higher rates of mort., which look unfavourable by the side of a high standard of salubrity, but favourable as compared with the rates of other cities left in a worse state.

In the year 1872 the ann. rate of mort. fell to 21·4 p. 1000: this contrasts favourably not only with 1849 and 1854, when the ann. rates were, owing to cholera, 30·1 and 29·4, but with every year except 1850, after the cholera had swept off the feeble, when the rate was 21·0. The causes of this better state of things can be most conveniently discussed in the Ann. Rep., for they were in general operation throughout the kingdom. In the mean time, Lond. may accept the improvement in the vitality of her pop. as of good augury.

The following are the death-rates p. 1000 of the pop. of some of the leading cities on the American continent, as obtained from special sources by Dr. Charles P. Russell, medical officer of the New York Board of Health, 1873 :

San Francisco ...	17	Brooklyn ...	28	New York ...	32
St. Louis ...	20	Boston ...	30	Savannah ...	36
Cincinnati ...	20	New Orleans ...	30	Montreal ...	37
Baltimore ...	25	Newark ...	31	Memphis ...	46
Philadelphia ...	26	Halifax ...	31	Valparaiso, Chili ...	66
Chicago ...	27				

DEATH, SIGNS OF.—In 1834 M. Julia de Fontenelle, a man of science, pub. *Medico-Legal Researches on the Uncertainty of the Signs of Death.* This work was for many years, if it be not now, the standard one upon the subject. In the *Quarterly Review* for 1849 there is a most able article upon the subject, full of interest, based upon the work of Fontenelle.

DEATH, TIME OF.—This question is discussed under **DEATH, PRESUMPTION OF.** [**DEATH, HOUR OF.**]

DEATH-WOUND.—A term applied to a ship, when she springs a leak which the pumps cannot subdue; or receives any other injury which in the end proves fatal to her. [**DAYS OF GRACE—*Marine.***]

DEATHS, AS A MEASURE OF THE EXPECTATION OF LIFE.—It is well known to all those practically conversant with the construction of Mort. T. that the *deaths* in a pop. can only be employed as a measure of the prob. duration of life, *i.e.* as a basis for the construction of accurate Mort. T., *when the births and deaths are equal, and there is no emigration*—a state of matters which very rarely happens in any community; and which, whenever it does happen, cannot long continue.

It follows, as a necessary consequence, that the early Mort. T., which were all constructed upon the records of deaths alone, *cannot be correct.* The measure of their inaccuracy will depend upon the degree in which the births exceeded the deaths, as they must always do where the pop. is increasing without influx by immigration; or were less than the deaths, as they must be where the pop. is decreasing without the aid of emigration. The element required to be associated with the number of deaths, in order to arrive at correct results, is the *number of living out of which the deaths occurred*—that is, the numbers living at the ages at which the deaths occurred.

Dr. Price himself, although he constructed several of his Mort. T. from the records of deaths alone, became aware of the fallacy involved in the method.

Mr. Milne, in his art. *Law of Mort.*, which first appeared in the *Encyclo. Brit.* in 1824, handled the point with great distinctness :

The number of years in the *mean duration of life from birth*, according to a Mort. T. properly constructed from the necessary data, will, when the pop. has remained stationary for a century or more, be the same as the number of persons in the whole pop. out of which 1 dies annually. When the pop. has been increasing, the mean duration of life, according to the T., will be less than the number out of which 1 dies ann. in that pop.; but the difference will be small, except under particular circumstances.

Again :

When T. of Mort. are constructed from the numbers of deaths only in the different intervals of age, without comparing them with the number of living persons in the same intervals; . . . and the pop. is increasing; the number of years in the mean duration of life from birth, according to that T., will fall short of the number of people out of which 1 dies ann., by a *much greater number* than in the case we have just been considering, of the T. of Mort. having been properly constructed from the necessary data.

Finally :

When what we have shown here is clearly understood, and the proportion of the people dying ann. is known, it will not be difficult to judge whether a T. of Mort. for that people has been constructed properly from the necessary data ; or, what is much more common, and more easily effected, merely by summation of the deaths at all ages. . . .

The Reg.-Gen. in his 5th Ann. Rep. 1843 [Returns for 1841], says :

The duration of life in England is 41 years ; if the pop. were stationary, the mean age of those who died would be 41 years ; and 1 in 41 would die every year. The pop. has, however, increased 1.41 p.c. ann. during the last 40 years ; and we find that the mean age of the persons who died in the year 1841, instead of being 41, is 29 years ; while 1 in 46 of the pop. died. This agrees with what Mr. Milne lays down as the result of other obs. [DEATH-RATE.] [MEAN DURATION OF LIFE.]

DEATHS, AS A MEASURE OF THE POPULATION.—Among the many expedients which were employed for estimating the pop., prior to the estab. of a national census in Gt. Brit., was that of multiplying the number of deaths by the number of living out of which 1 death was supposed to occur ann. Thus if the deaths in any place were found to be 50,000 p.a., and it was supposed that 1 in every 30 of the living died ann., it would work out that the pop. of such place must be taken at 1,500,000. But the process was really that of placing the cart before the horse : for the death-rate itself can only be accurately ascertained by comparing the ann. deaths with the numbers living, as ascertained by actual enumeration. All such estimates were therefore necessarily fallacious, or at least lacked the element of certainty. Again, if the law of mort. were uniform in its operations in all countries and towns, the death-rate being ascertained for one place, then the pop. of all other places might be ascertained by means of the rule named. But as the mort. of every country, and of all the principal towns in each country, varies, it is clear that the rule never could have any general application.

Graunt was prob. the first who attempted (1662) to number the pop. by means of the ann. deaths. He estimated the rate of mort. as 1 death p.a. out of 32 living—exclusive of the mort. produced by the plague ; and multiplying the deaths shown in the bills of mort. by 32, he made the pop. of Lond. to be 403,000.

Sir William Petty in 1683 applied the same method. He took the ann. mort. to be 1 to 30 persons living. Multiplying the deaths by 30, he made the pop. 669,930.

Sussmilch, in one of the later editions of his *Göttliche Ordnung*, had applied the same test to the pop. of Rome. Struyk had about the same period (1752) applied a similar test to Amsterdam.

Dr. Brakenridge, in a paper submitted to the Royal So. in 1755, undertook to determine the number of inhabitants in Lond. by means of the ann. number of burials, adding 2000 to the bills for omissions, and supposing a 30th part to die every year.

Dr. Price, in his *Reversionary Payments*, 1771, laid down the following proposition :

In every place which just supports itself in the number of its inhabitants, without any recruits from other places, or where for a course of years there has been no increase or decrease, the number of persons dying every year at any particular age, and above it, must be equal to the number of the living at that age. The number for instance dying every year at all ages, from the beginning to the utmost extremity of life, must in such a situation be just equal to the whole number born every year. And, for the same reason, the number dying every year at 1 year of age, and upwards ; and 2 years of age, and upwards ; and 3 and upwards, and so on, must be equal to the numbers that attain to those ages every year ; or, which is the same, to the numbers of the living at those ages. It is obvious that unless this happens, the number of inhabitants cannot remain the same. If the former number is greater than the latter, the inhabitants must decrease ; if less, they must increase. From this obs. it follows, that in a town or country, where there is no increase or decrease, bills of mort. which give the ages at which all die, will show the exact number of inhabitants ; and also the exact law according to which human life wastes in that town or country.

Dr. Price considered that he produced “evidence little short of demonstration, that at least 1 in 20½ died ann. in Lond. about 1771 ; and that consequently the number of inhabitants, if the omissions in the B. of Mort. were 6000 p.a., could not exceed 601,750.”

It is not necessary to follow up the subject: the system is not only exploded, but all necessity for its application has long since passed away. It had this radical defect in practice, in add. to the defects already pointed out, viz. that it was very likely to make the pop. appear the largest at those particular periods when it was in reality the smallest ; for instance, the mort. being rendered unusually large by an epidemic or other cause, the increase of deaths, which actually lessened the number living, would, as a necessary consequence, show a very large apparent increase in the pop. at the same period. [ESTIMATES.] [MORT., LAW OF.] [POPULATION.]

DEATHS, INFLUENCE OF THE SEASONS ON.—See SEASONS, INFLUENCE OF.

DEATHS IN PUBLIC INSTITUTIONS.—The deaths in the Public Institutions of a country, or of a city, give rise to the necessity for a “correction” of its mortuary returns, in view of furnishing the correct death-rate for such country or place. For instance, the deaths in military and naval hospitals do not really belong to the districts in which such inst. are situated ; for the army and navy are recruited from the pop. of the entire country ; and the deaths resulting are to be spread over the entire deaths of the country. But here again another “correction” becomes necessary : the health of soldiers and sailors—of soldiers especially—becomes deteriorated by foreign service, and by residence in unhealthy barracks in towns. The rural districts are not to be debited with a rate of mort. which does not belong to them, as arising from such causes. They are to be debited simply

with the ordinary death-rate of the country, assuming the same number of persons to be engaged in ordinary pursuits.

So in cities and towns, the deaths in the hospitals, prisons, workhouses, asylums, etc., belong in part to the pop. of the surrounding districts, from which their occupants were drawn; and in seaport towns many of the deaths are those of foreigners.

We mention these points only to show that they are all duly considered and dealt with by the Reg.-Gen. and his able staff of assistants. We shall give a few details illustrative of these points. The mort. of the army is dealt with as a whole; and the national returns are from time to time corrected accordingly.

In 1861 there were, as shown by the census, 154,602 inmates in 853 public institutions of E. and W. There died during the same year 32,437 inmates; and assuming the average number of inmates to be represented by the number at the date of the census, the mort. was at the rate of 20·98 p.c., or 210 p. 1000; while the mort. of the pop. of E. and W. was at the rate of 22 p. 1000 of the pop. The mort. of the public inst. of the country was therefore ten times as high as the mort. in the pop. generally. The ann. average rate of mort. p. 1000 average inmates was 190 in 690 workhouses; 569 in 106 hospitals; and 111 in 57 lunatic asylums.

During 1870 there were regis. 43,017 deaths in 1034 of the largest public inst. of E. and W. Of these inst. 690 were *workhouses*, 266 were *hospitals* or *infirmaries*, and 78 were *lunatic asylums*. Of each 100 deaths regis. in E. and W. during 1870, 5·6 were recorded in workhouses, 2·0 in hospitals, and ·7 p.c. in lunatic asylums; these per-centages exactly correspond with those which prevailed in 1869. The proportion of deaths in public inst. as usual varied very considerably in the different regis. divisions; in the Metropolitan Divisions 16·1 p.c. of the total deaths were returned in the large public institutions; in the South-eastern Division, including Surrey (extra-metropolitan), Kent (extra-metropolitan), Sussex, Hampshire, and Berkshire, the proportion was 9·6 p.c., owing in great measure to several large metropolitan inst. being situated therein; and in the north-western counties, Lancashire and Cheshire, it was 8·8 p.c. The smallest proportions were 3·8 p.c. in the Welsh; 5·2 each in the North-Midland and Yorkshire; and 5·3 in the Northern Regis. divisions.

Regarding the metropolis, we have more precise returns. In 1867, 12,002 persons died in 120 public inst. in London, constituting about a sixth part of the total deaths of the metropolis. In other words, of 1000 deaths in Lond. in 1867, no less than 170 occurred in one or other of the public inst.; and of every 1000 of pop. in Lond. 3·9 were inmates of these inst. at the time of their death. Of every 1000 deaths 63·4 occurred in one or other of the 36 metropolitan hospitals—viz. 3291, or 46·6 p. 1000, in 16 general hospitals; 929, or 13·2 p. 1000, in 8 hospitals for special diseases; 82, or 1·1 p. 1000, in 4 lying-in hospitals; and 177, or 2·5 p. 1000, in 8 military and naval hospitals. The mort. of Lond. is not unduly augmented by the deaths of persons in the metropolitan hospitals who came from other parts, or contracted diseases in the wards, as these cases are compensated for by the residents of Lond. who left it consumptive to die elsewhere. There were also three hospitals and asylums for foreigners, in which 100 deaths occurred, being in the proportion of 1·4 p. 1000 of the total deaths. 147 deaths, or 2·1 p. 1000, took place in 4 military and naval asylums. In the 19 lunatic asylums 357 deaths were regis., being in the proportion of 5·1 to every 1000 deaths. It may be stated that two large lunatic asylums—Hanwell and Colney Hatch, in which many Lond. lunatics die—are beyond the limits of the metropolis. In the 46 metropolitan workhouses there were 6829 deaths, or 96·7 out of every 1000 deaths in Lond. occurred among the inmates of workhouses; 90 deaths, or 1·3 per 1000, were recorded in 12 prisons.

The following T. exhibits the facts more clearly:

Number of Deaths in the different Classes of Public Institutions of London during the Year 1867.

INSTITUTIONS.	Deaths in 1867.	Of the Total Deaths in London the proportion p.c. in Public Institutions.
London.—Total Deaths in 120 Public Institutions	12002	17·00
In 46 Workhouses.....	6829	9·67
12 Prisons	90	·13
4 Military and Naval Asylums	147	·21
16 General Hospitals	3291	4·66
8 Hospitals for Special Diseases	929	1·32
4 Lying-in-Hospitals	82	·04
{ Women	31	·07
{ Children	51	·07
8 Military and Naval Hospitals	177	·25
3 Hospitals and Asylums for Foreigners	100	·14
19 Lunatic Asylums	357	·51

And the following gives the deaths under a like arrangement over a series of years :

Deaths in the Public Institutions of London, 1857-67.

	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867
	(53 weeks)						(53 weeks)				
Total D. in Pub. Inst.	10079	10004	9633	9550	10276	11313	11112	12731	12116	13054	12002
In Workhouses	5714	5535	5228	5161	5757	6401	6187	7055	6715	7088	6829
Prisons	71	57	40	41	46	53	64	125	99	95	90
Mil. and Naval Asy. ...	285	317	307	272	251	307	289	315	278	195	147
General Hospitals...	3008	3094	2927	3039	3234	3167	3169	3558	3354	3813	3291
Hosp. for Spec. Dis. ...	332	272	431	413	335	690	827	982	1002	1167	929
Lying-in } { W. ...	11	11	35	34	38	35	11	24	26	22	31
Hospitals } { C. ...	23	32	51	57	58	40	37	48	42	50	51
Mil. and Nav. Hosp. ...	180	211	187	173	223	236	203	215	176	146	177
Hosp. for Foreigners ...	63	53	46	47	58	74	61	82	71	96	100
Lunatic Asylums ...	392	422	381	313	276	310	264	327	353	382	357

[Note.—This T. is compiled from the Weekly Returns made by the Registrars of Lond., and relates to the 52 or 53 weeks of each year.]

Dr. Buchanan Washbourne has shown that the difference in the general death-rate caused by the fatal cases in the Public Inst. of Gloucester varies from 1 to 1·6 p. 1000 of the pop.

In 1867 Dr. W. A. Guy read before the Statistical So. a paper: *On the Mort. of Lond. Hospitals; and incidentally on the Deaths in the Prisons and Public Inst. of the Metropolis.* [Statist. Journ. xxx. p. 293.] We shall speak of this paper under HOSPITALS, etc.

In 1872, 12,029 deaths occurred in the public inst. of Lond.; 6177 in the workhouses, 5085 in the civil hospitals, including 94 in hospitals for foreigners; 183 men died in the naval and military hospitals; 16 women and 60 children died in lying-in hospitals, 191 men and 155 women in lunatic asylums. One person in 6 dies in a public inst. Out of 100 deaths 9 occurred in workhouses, 8 in hospitals. The deaths in public inst. are increasing; more dying in hospitals, fewer in workhouses and prisons.—*Reg.-Gen. Ann. Summary for 1872.*

DEATHS, REGISTRATION OF.—The Regis. of Deaths in England dates back to 1538, at which period a system of Parochial Regis. was attempted to be estab. under a mandate from Thomas Cromwell. [PARISH REGIS.] The appearance of the *Plague* in that and the following century caused a great deal of interest to be taken in the regis. of deaths; and indeed led to the estab. of B. of Mort. in London, and many of the larger towns, as we have already shown. [BILLS OF MORT.]

The cessation of plague visitations and the general improvement in the public health appear to have led to some laxity in the system during the close of the last and the commencement of the present century. However, in 1831, the first visitation of Asiatic Cholera to Gt. Brit. came, and public attention was again drawn to the subject. This eventuated in the passing of the General Regis. Act in 1836, which has been productive of the greatest possible good. Similar measures for Scotland and Ireland followed; and we trust our regis. system is now about to be perfected.

The form for general regis. of deaths comprises: the time of death, name and surname, sex, age, profession, and cause of death of the deceased; the signature, description and residence of the informant—who must be some person present at the death, or in attendance during the last illness, or else the occupier of the house (sec. 25), with the date of regis. and signature of registrar. [MARINE REGIS. BOOK.] [REGISTRATION.]

DEATHS, STATISTICS OF.—Under this head we propose to give some general statistics of deaths not falling under either of the preceding heads: especially the statistics of deaths in E. and W. from the earliest dates of which we have any record.

Under BILLS OF MORT. we have noted many of the earlier Death Registers; under PARISH REGISTERS, and REGISTRATION, this part of the subject will be further dealt with.

Under MORTALITY OBS. we shall give a chronological account of numerous obs. which have been taken at various periods, and in various parts of the world, in view of collecting accurate statistics on the subject of deaths. From these have been constructed not only numerous T. of Mort. [MORT. TABLES], but a law of human mort. has been propounded, which we shall speak of in detail under MORT., LAW OF.

We have shown in our art. BIRTHS [under date 1852], that from investigations made by Herr Hopf, of Gotha, and communicated by him to the *Assu. Mag.* [vol. iii. p. 255] in 1852, the ratio of ann. *births* to the pop. had been more uniform—that is, had presented a more limited range of fluctuations—than the *deaths*. We need not repeat the results; it will repay the reader to turn back and peruse them. [POPULATION.]

Scientific writers have asserted that the number of persons who have existed since the beginning of time amounts to 36,627,843,275,075,845. These figures when divided by 3,095,000 (the number of square leagues of land on the globe) show 11,320,689,732 square miles of land as a total; which being divided as before give 134,622,976 persons to each square mile. Reduce the miles to square rods, and the number will be

1,853,174,600,000, which being divided as before will give 1283 inhabitants to each square rod; which being reduced to feet will give about 5 persons to each square foot of *terra firma*. Thus it appears that our earth is one vast cemetery—1283 human beings lie buried in each square rod, scarcely sufficient for 10 graves. If every one had gone through the form of Christian burial, each grave must contain 128 persons, and the whole surface of the globe would have been dug over 128 times to bury its dead.

Sir William Petty pub. in 1682 his famous *Essay concerning the Multiplication of Mankind*. At that period he estimated "the number of the quick and the dead who may rise at the last day" at 20,032,000,000, or less than "one-fifth part of the graves which the surface of Ireland will afford, without ever putting two bodies in any one grave"!

But we may leave such estimates—which at the best are of no practical value—and come down to the facts and figures which relate to our own time, and are within the range of verification.

The deaths in E. and W. are about 500,000 ann., increasing with the pop., and fluctuating very slightly. The ann. per-centage to the pop. is $2\frac{1}{8}$, varying in different districts of the country as already shown. The mort. is highest in winter and lowest in summer, varying in these respects slightly with the different districts. When this order is reversed, the cause is some epidemic disease, such as cholera, fevers, etc., usually most fatal in the summer season. The ann. rate of mort. among *males* under 5 is $7\frac{1}{4}$ p.c.; among *females* under 5, $6\frac{1}{4}$ p.c.; among *males* at all ages, $2\frac{1}{3}$ p.c.; among *females* at all ages, $2\frac{1}{6}$ p.c. The classification of the causes of death is becoming reduced to a science. The materials for testing and amplifying all these and many other points of interest are contained in the preceding or the following T.

DEATHS IN E. AND W. FROM 1700 DOWN TO 1871:

Year	Males.	Females.	Totals.	Decennial average p.c.of pop.	Year	Males.	Females.	Totals.	Decennial average p.c.of pop.
1700	65,752	66,976	132,728		1822	...	...	220,415	
1710	70,606	69,702	140,308		1823	...	...	237,386	
1720	81,156	79,268	160,424		1824	...	...	244,074	
1730	89,085	87,048	176,493		1825	...	...	255,018	
1740	83,706	83,267	166,973		1826	...	...	208,161	
1750	77,149	77,537	154,686		1827	...	...	251,871	
1760	77,750	77,887	155,637		1828	...	...	255,333	
1770	85,952	88,431	174,383		1829	...	...	204,230	
1780	95,845	95,891	191,736		1830	...	...	254,067	1'91
					1831	...	...	275,897	
1781	94,505	94,867	189,372		1832	...	...	295,133	
1782	90,189	90,725	180,914		1833	...	...	287,594	
1783	90,606	91,383	181,989		1834	...	...	280,206	
1784	92,851	95,070	187,921		1835	...	...	278,692	
1785	91,548	93,922	185,470		1836	...	...	278,763	
1786	88,330	90,728	179,058		1837	...	...	333,437	
1787	88,123	90,595	178,718		1838	175,160	167,600	342,760	
1788	89,227	92,118	181,345		1839	172,766	166,218	338,984	
1789	88,411	90,973	179,384		1840	182,421	177,266	359,687	2'07
1790	87,954	90,777	178,731		1841	174,198	169,649	343,847	
1791	90,895	89,557	180,452		1842	176,594	172,925	349,519	
1792	90,963	91,046	182,009		1843	175,721	170,724	346,445	
1793	98,560	98,305	196,865		1844	181,126	175,807	356,933	
1794	95,511	95,638	191,149		1845	177,529	171,837	349,366	
1795	102,086	101,242	203,328		1846	198,325	191,990	390,315	
1796	92,289	92,245	184,534		1847	212,426	207,240	419,666	
1797	92,292	92,637	184,929		1848	202,265	196,266	398,531	
1798	90,657	90,656	181,313		1849	221,801	219,038	440,839	
1799	92,078	91,189	183,267		1850	186,491	182,504	368,995	2'23
1800	101,686	99,442	201,128		1851	200,500	194,896	395,396	
1801	101,352	103,082	204,434		1852	207,042	200,093	407,135	
1802	99,504	100,385	199,889		1853	214,780	206,377	421,097	
1803	95,518	101,269	203,728		1854	222,422	215,483	437,905	
1804	91,086	89,639	181,777		1855	216,587	209,116	425,703	
1805	91,086	90,154	181,240		1856	198,875	191,631	390,506	
1806	92,289	91,163	183,452		1857	212,350	207,459	419,815	
1807	97,996	97,855	195,851		1858	227,226	222,436	449,656	
1808	102,614	98,149	200,763		1859	223,576	217,205	440,781	
1809	97,894	93,577	191,471		1860	215,218	207,483	422,721	2'22
1810	104,709	103,277	208,184	1'96	1861	222,281	212,833	435,114	
1811	94,971	93,572	188,543		1862	222,622	213,944	436,566	
1812	95,957	94,445	190,402		1863	242,203	231,632	473,837	
1813	93,726	92,751	186,477		1864	253,610	241,912	495,531	
1814	103,525	102,878	206,403		1865	252,218	238,691	490,909	
1815	99,442	97,966	197,408		1866	256,402	244,287	500,689	
1816	103,954	102,005	205,959		1867	242,588	228,487	471,075	
1817	101,040	98,229	199,269		1868	247,107	233,515	480,622	
1818	107,724	105,900	213,624		1869	254,863	239,965	494,828	
1819	106,749	106,815	213,564		1870	255,866	249,743	515,329	2'25
1820	104,329	104,020	208,349	1'83	1871	265,563	249,316	514,879	
1821	...	...	212,352						

[Note.—The deaths in the first part of this T.—down to 1820—are drawn from Marshall's *Mort. of the Metropolis*, etc., 1832. From 1820 to 1838, from McCulloch's *British Empire*, 1844. From 1838 to 1871, from 33rd Rep. of Reg. Gen.]

The R. of the Reg.-Gen. enable us to add the following valuable supplemental Tables :

DEATHS, STATISTICS OF.

I.—Deaths regis. at different Ages in each of the Thirty-four Years 1838-71.—MALES.

AGES AT DEATH. — MALES.

Years.	All Ages.	Under 1 Year.	Under 5 Years.	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85-	95 and upwards.	?
1838	175,160	41,081	70,990	8306	4431	5542	6891	12,021	11,200	11,378	12,827	14,656	12,331	3736	265	586
1839	172,766	41,725	73,163	8425	4410	5406	6633	11,278	10,640	10,685	12,444	13,859	11,784	3512	230	487
1840	182,421	43,594	77,988	10,199	4722	5761	6663	11,532	10,902	10,872	12,404	14,688	12,404	3811	259	326
1841	174,198	41,444	77,395	9093	4478	5604	6633	11,467	10,636	10,995	12,508	14,511	12,350	3739	249	340
1842	176,594	44,046	74,647	8657	4444	5450	6483	11,019	10,624	10,867	12,362	15,037	12,767	3717	248	272
1843	175,721	44,480	73,925	8197	4282	5349	6543	11,100	10,978	10,982	12,462	15,265	12,478	3634	244	282
1844	181,126	45,183	75,780	8804	4278	5233	6645	11,425	11,205	11,366	12,887	15,921	13,126	4013	231	212
1845	177,529	43,520	73,174	8150	4251	5416	6804	11,397	11,166	11,333	12,803	15,616	13,045	3823	262	229
1846	198,325	52,388	86,219	8256	4674	6064	7574	12,762	11,992	12,102	12,827	15,974	13,807	4083	276	238
1847	212,420	49,415	84,890	9756	5088	6601	8220	13,037	12,616	12,932	14,831	17,184	13,994	3875	226	219
1848	202,265	48,373	83,928	10,618	4957	6129	7719	13,037	12,616	12,932	14,831	17,184	13,994	3875	226	219
1849	221,801	51,417	86,491	11,592	6119	6891	8666	13,789	13,673	14,057	16,234	19,092	15,974	4488	301	255
1850	186,491	48,387	77,982	8482	4470	5392	6450	11,484	11,635	12,366	14,906	16,582	13,429	3631	206	266
1851	200,500	53,137	86,013	9145	4736	5914	7029	12,531	12,547	13,104	14,609	17,116	13,612	3394	224	326
1852	207,042	55,299	89,559	9652	5084	6130	7377	12,957	12,657	13,493	15,009	17,040	13,897	3046	235	306
1853	214,720	54,847	88,742	9132	5003	6414	7749	13,716	13,692	14,715	16,196	18,962	15,782	4082	259	276
1854	222,422	55,380	95,442	10,222	5520	6567	7907	14,074	14,234	14,947	16,160	18,533	14,901	3702	213	.....
1855	216,587	54,798	89,527	9040	5054	6129	7362	13,278	12,671	14,593	16,958	19,957	16,418	4375	239	.....
1856	198,875	52,598	85,280	8031	4619	5854	7028	12,387	13,721	13,223	15,258	17,388	13,336	3367	183	.....
1857	212,356	57,285	92,915	8797	4813	5949	7072	12,645	13,115	13,946	15,937	18,361	14,775	3333	198	.....
1858	227,220	57,816	99,827	11,962	5192	6350	7300	12,833	13,625	14,471	16,743	19,433	15,232	4022	230	.....
1859	223,576	58,922	98,874	10,646	4988	6070	7158	12,766	13,743	14,754	16,904	19,097	14,657	3712	207	.....
1860	215,238	56,892	90,428	7935	4353	5826	7070	12,605	13,999	14,949	17,634	19,949	15,578	3926	203	.....
1861	222,281	59,673	97,477	7926	4606	6191	7117	12,887	14,022	14,931	17,481	19,949	15,578	3912	204	.....
1862	222,622	56,960	96,029	9154	4760	6037	7170	13,078	14,209	15,571	17,939	19,609	15,067	3746	103	.....
1863	242,203	60,707	108,454	12,407	5450	6264	7454	13,550	14,887	15,869	18,416	20,116	15,212	3911	213	.....
1864	253,619	62,818	107,212	12,094	5499	6518	8086	15,041	16,780	17,787	20,681	22,536	16,993	4227	202	.....
1865	252,218	66,597	107,156	10,050	5309	6477	8249	15,615	16,794	18,303	20,779	22,536	16,993	4227	202	.....
1866	256,402	66,851	108,424	9903	5214	6626	8384	16,328	17,463	18,940	20,804	22,711	17,068	4249	198	.....
1867	242,588	65,404	101,502	8327	4578	6229	7678	15,088	16,236	17,474	20,883	22,865	17,599	4407	212	.....
1868	247,107	67,290	108,325	10,131	4888	6164	7413	15,921	17,945	17,592	19,782	21,745	16,224	3799	178	.....
1869	254,863	66,601	109,012	10,930	5090	6024	7428	15,332	16,421	18,184	20,861	23,625	17,572	4218	166	.....
1870	265,586	70,465	114,999	11,903	5470	6391	7612	15,894	16,940	18,622	21,500	24,407	18,147	4407	104	.....
1871	265,563	69,699	110,523	11,206	5421	6931	8772	17,655	17,823	19,305	21,786	24,029	17,557	4320	215	.....

II.—Deaths regis. at different Ages in each of the Thirty-four Years 1838-71.—FEMALES.

AGES AT DEATH.—FEMALES.

Years.	All Ages.	Under 1 Year.	Under 5 Years.	5- 10-	10- 15-	15- 20-	20- 25-	25- 35-	35- 45-	45- 55-	55- 65-	65- 75-	75- 85-	85- 95 and upwards.	?
1838	167,600	32,525	61,947	7832	4744	6302	7345	12,902	11,240	10,250	14,504	13,043	4646	416	299
1839	166,218	32,806	63,534	8291	4794	6422	7224	12,556	10,863	9742	13,859	12,512	4438	404	303
1840	177,266	33,907	67,332	10,008	5044	6803	7277	13,027	11,251	10,040	13,005	13,785	5049	468	173
1841	169,949	32,766	61,988	8775	4938	6452	7289	12,836	11,069	10,060	15,129	13,856	5054	465	181
1842	172,925	34,658	64,388	8551	4596	6382	7263	12,945	11,201	10,141	15,866	13,799	5110	434	124
1843	170,724	34,773	63,698	7945	4382	5980	6995	12,710	11,460	10,043	15,792	13,994	5008	473	119
1844	175,807	34,903	64,224	8503	4599	6234	7262	13,234	11,397	10,503	16,559	14,738	5179	452	156
1845	171,837	33,906	62,493	7702	4356	6364	7300	13,034	11,487	10,293	16,323	14,495	5053	426	98
1846	191,990	41,256	74,401	7934	4909	6753	7934	14,088	12,213	11,134	17,474	15,609	5590	529	112
1847	207,240	39,093	73,472	9304	5223	7138	8408	15,863	14,166	12,948	18,279	15,659	5928	537	113
1848	196,266	38,034	72,577	9968	5267	6893	8087	14,916	13,209	11,730	17,822	15,896	5139	473	108
1849	219,038	40,754	74,609	11,202	6138	6997	9426	18,686	16,747	15,060	19,775	16,730	5201	439	147
1850	182,504	37,915	66,679	8350	4044	6294	7182	13,848	12,348	11,306	17,454	15,396	4895	435	119
1851	194,896	41,616	73,932	8977	5014	6626	7647	14,231	12,779	11,868	18,195	15,828	5005	456	203
1852	200,093	43,361	76,555	9280	5167	6996	7729	14,778	13,167	11,972	17,954	16,467	5271	417	138
1853	206,377	43,084	76,336	8675	5249	7298	8361	15,403	13,708	12,745	19,488	17,808	5624	474	161
1854	215,483	43,919	82,743	9986	5513	7216	8291	16,144	14,725	13,443	19,226	17,023	5189	422	.....
1855	209,116	42,705	76,216	8792	4898	6940	7969	14,783	14,107	12,751	20,801	19,088	6001	442	.....
1856	191,631	41,809	73,787	8134	4324	6428	7344	13,984	13,140	11,801	17,697	15,626	4706	365	.....
1857	207,459	45,942	81,089	8644	4686	6718	7786	14,277	13,551	12,456	19,727	17,251	5475	451	.....
1858	222,436	46,021	87,102	11,851	5430	7018	8199	14,978	14,151	12,456	20,702	18,248	5795	454	.....
1859	187,205	46,697	85,390	10,771	5392	6866	7914	14,996	14,219	13,166	19,934	17,224	5407	400	.....
1860	207,483	44,092	76,356	8032	4350	6520	7554	14,745	14,165	13,223	21,309	18,296	5828	392	.....
1861	212,833	46,755	83,652	7904	4374	6857	7838	14,830	13,915	13,159	20,341	17,667	5231	439	.....
1862	213,944	44,413	82,484	8838	4359	6740	7612	14,914	14,364	13,473	20,787	17,537	5351	392	.....
1863	231,634	47,382	93,556	11,973	5591	6803	7965	15,544	14,870	13,735	20,720	17,798	5705	430	.....
1864	241,912	50,117	92,591	11,541	5566	7063	8398	16,056	15,878	15,465	23,584	19,733	6040	443	.....
1865	238,691	53,303	92,687	9683	5111	7007	8542	16,661	16,026	15,714	22,750	19,533	5940	481	.....
1866	244,287	53,448	94,595	9126	5074	7123	8682	17,454	16,940	16,258	23,426	19,958	6059	416	.....
1867	228,487	51,797	87,096	7850	4401	7138	7926	15,915	15,488	15,247	23,064	20,142	5926	438	.....
1868	233,515	54,785	94,804	9619	4804	6663	7978	15,067	15,080	14,836	21,689	18,448	5494	383	.....
1869	239,965	53,583	94,550	10,253	5071	6562	7566	15,896	15,812	15,812	23,653	20,031	5882	402	.....
1870	249,743	56,173	97,595	11,148	5369	7956	7956	16,492	15,893	16,163	24,561	20,997	6232	428	.....
1871	249,316	56,169	96,090	10,239	5404	7310	8676	17,070	16,475	16,531	24,830	20,255	6018	403	.....

DEBENTURE (from the Latin *debeo*, to owe).—A deed-poll charging certain property or funds with the repayment of money lent to a person therein named, at a given int. It is frequently resorted to by public cos. to raise money for the prosecution of their undertakings. Unless specifically charged upon real property, under, say, an Act of Parl., a Debenture is only a kind of I O U ; and in all cases there must be power to issue debentures before they can be of any value.

The term is also used at the Custom House for a kind of certificate given to persons entitled to receive a bounty or drawback.

DEBILITY (from *debilis*, weak).—Asthenia, weakness, feebleness, decay of strength both in mind and body.

DEBILITY, DEATHS FROM (Class, DEVELOPMENTAL ; Order, *Diseases of Nutrition*).—See ATROPHY AND DEBILITY, which are now thrown together in the R. of the Reg.-Gen.

In the mort. experience of the *Scottish Widows Fund* during 37 years (1815-52) there were 17 deaths returned under this head : 2 occurred between ages 30 and 40 ; 2 between 40 and 50 ; 2 between 50 and 60 ; 9 between 60 and 70 ; and 3 between 70 and 80.

DEBITUM IN PRÆSENTI, SOLVENDUM IN FUTURO.—A debt due at present, to be paid at a future time.

DEBT.—A sum of money due from one person to another.

DEBT INS. SO.—Founded in 1871, being apparently a private enterprise worked as an asso. We have given an account of its main features under COMMERCIAL CREDIT INS. The asso. has issued the following adv. :

COMMERCIAL DEBT INS.—The Debt Ins. So. pays 10s., 12s. 6d., or 15s. in the pound, in cash, at the time of a debtor's failure, and all dividends which may be realized beyond the amount so paid. Debts are ins. monthly or yearly, from £10 to £200 each. The ordin. rates of prem. p. £100 p.a. are from 67s. to 127s. Prospectuses forwarded to wholesale houses.

DEBTOR.—A person indebted pecuniarily to another. A creditor has an insurable interest in the life of his debtor ; but a debtor has no such interest in the life of his creditor. A debtor has an insurable interest in property held as security by his creditor. He has been held to have an insurable interest in property which he had fraudulently concealed from his creditors. The whole subject, which is one of considerable practical importance, will be reviewed under INSURABLE INTEREST.

DEBTS, INS. OF.—Under COMMERCIAL CREDIT INS. we have given a full outline of the various offices which have undertaken this class of bus. We shall have occasion to speak of some other developments of the principle under GUARANTEE INS.

DECAPITATION.—The act of beheading. As a mode of capital punishment, it was introduced by William the Conqueror in 1076, being in his view a less ignominious mode of putting high criminals to death than the then existing modes. It became very fashionable during the reigns of Henry VIII. and Mary.

DECEDENT.—A deceased person.

DECEIT (from the Latin *deceptio*).—Fraud, cheat, craft, or collusion used to deceive and defraud another. [CONCEALMENT.] [FRAUD.]

DECENNIAL.—Continuing for ten years ; consisting of ten years ; or happening every ten years—a decennary or decennial period.

DECENNIAL LIFE TABLES.—Tables showing the expectation of life at every tenth year of age. For the purpose of instituting comparisons regarding the longevity of the inhabitants of different parts of the kingdom, and of the towns and cities, such T. (which of course involve very much less time and labour in construction than ordinary L. tables) have been deemed sufficient ; and Dr. Farr, in the Appendix to the 5th R. of Reg.-Gen. pub. 1843, furnished rules for the constructing and "correcting" such T.

DECIMAL ARITHMETIC.—The common system of arithmetic in which the scale of numbers proceeds by tens. The name derived from *decem* (ten) is expressive of the property of decimals : they always denote parts of ten, or ten continually multiplied by ten, as 10, 100, 1000, 10,000, to any appreciable extent. The decimal system is said to have been introduced by Regiomontanus about A.D. 1464. But the first known work on the subject was written by Simon Stevin, the *Pratique d'Arithmétique*, pub. 1582. In another work of his, *Disme, the Art of Tenths*, pub. at Leyden in 1602, he gives reasons for conjecturing that this art was not first invented in Italy so recently as 200 or 300 years before his time (as many had conjectured), but that the very same art, or something nearly resembling it, was known in Rome in Julius Cæsar's time.

DECIMAL NOTATION.—The greater proportion of the Tables and Annu. and Ins. and other values in the pages of this work are given in decimals ; no other system being sufficiently exact or facile where comparisons have to be made, or where extreme accuracy is desirable. Most of our readers will be perfectly familiar with the use of decimals ; but some will not. For the benefit of the latter it is necessary to explain that 1' or 1'0 or 1'00 or 1'000 means simply *one*. That 1'1 means $1\frac{1}{10}$; 1'5, $1\frac{1}{2}$; 1'9, $1\frac{9}{10}$. That 1'25 means $1\frac{1}{4}$; 1'50, $1\frac{1}{2}$; 1'75, $1\frac{3}{4}$. In short, that 1 is the unit, and the figures on the right of the point only tenths, hundredths, or thousandths parts of it, according as one, two, or three figures (called *places*) be on the right ; and that such counting applies to numbers of persons and things ; and to time and quantities. That in money values 1' means £1 ; 1'1, £1 2s. ; 1'5, £1 10s. That 10'2 means £10 4s. ; 100'3, £100 6s. That 1'250 means £1 5s. ; 1'750, £1 15s., and so on. The idea once obtained, the

system is simplicity itself. England is one of the few commercial countries which has failed to adopt the decimal system for its ordinary business transactions.

DECISIONES ROTÆ GENUÆ.—A collection of treatises on mercantile and maritime law, first pub. at Cologne in 1622, and afterwards at Amsterdam in 1669. This is a most important work, and is constantly referred to by writers on maritime law.

DECK (from the German, a *covering*, or a *roof*).—On shipboard a platform of planks laid upon the beams and carlings, forming a flooring for those above and shelter for those below. In add. it is the support of cargo, guns, etc.; and when the hatches are battened down, the means of keeping the waves out in tempestuous weather. To make them water-tight, the planks are caulked and pitched between. In large vessels there are several decks, as the *upper*, *main*, *lower*, and *orlop* decks.—*Brande*.

DECK-CARGOES.—See DECK-LOADS.

DECK-HOUSE.—An oblong house on the deck of some merchantmen, especially east-country vessels, and latterly in passenger steamers, with a gangway on each side of it.

DECK-LOADS.—Timber, casks, and other cargo not liable to damage from wet, stowed on the deck of merchant vessels. This, with the exception of carboys of vitriol, is not included in a general pol. of ins. on goods, unless it be specially stipulated.

The question of stowage of cargo upon deck is again receiving much attention. It is attended with many evils: the lives alike of passengers and crew being too frequently endangered thereby. The practice is by no means a modern one.

The Marine Ordin. of *Florence*, 1523, says:—If all or part of the insured goods be, with the consent of their owner, or him that caused them to be insured, loaded on the ship's *deck*, the insurers shall not be under any obligations, and yet be entitled to the prem. The Ordin. of *Antwerp*, 1563, has a similar provision.

The Ordin. of *Königsberg*, 1730, says: Goods stowed upon deck, or hanging without board, either with or without the consent of the freighters, or the ship's *boat*, lashed to the side, if after the lading be completed, and the ship is under way, they are not taken within board, are not entitled to any amends or *contribution*, though cut away or cast overboard for the general safety; yet shall they be obliged to contribute in case any average has been the means of saving them.

The Ordin. of *Hamburg*, 1731, says: All goods that lay upon the deck of a ship, if they are thrown overboard or damaged, are not to be paid for; but when they are preserved, they must nevertheless contribute towards the other goods that are flung over, reserving, however, to the owner of them his demand upon the captain.

In the case of *Blackett v. Royal Exchange Assu. Corp.*, 1832, Lord Lyndhurst, before whom the case was tried, offered the following obs.:

Goods carried on deck are not in the part of the ship where goods are usually carried; they are in more than usual peril, and an usage that they are not covered by an ordinary pol. on goods, but that they require a distinct explanation to the underwriter, of the part of the ship in which they are to be carried, or (where that will imply the same information) of the nature of the goods, is not at variance with any part of the pol., is essential to the information which the underwriter ought to receive, to enable him to estimate the risk and calculate the prem., and is a portion of that fairness which ought to be rigidly observed upon all these contracts.

By the 16 & 17 Vict. c. 107 (1853)—*An Act to Amend and Consolidate the Laws relating to the Customs of the U.K. and of the Isle of Man, and certain Laws relating to Trade and Navigation and the Brit. Possessions*—it is enacted:

CLXX.—Before any clearing officer permits any ship, wholly or in part laden with timber or wood goods, to clear out from any Brit. port in *N. America*, or in the Settlement of *Honduras*, for any port in the U.K., at any time after the 1st Sept. or before the 1st May in any year, he shall ascertain that the whole of the cargo of such ship is below deck, and shall give the master of such ship a certificate to that effect; and no master of any ship so laden shall sail from any of the ports aforesaid for any of the ports of the U.K., at any such time as aforesaid, until he has obtained such certificate from the clearing officer.

The following clause provides that no part of the cargo, other than the "store spars, or other articles necessary for the ship's use," shall be allowed to be on deck at the time of sailing, and shall only be put on deck during the voyage, in view of repairs or of some cause in connexion with injury to the ship: penalty, £100.

The case of *Cunard v. Hyde*, 1858, arose under these clauses; but the law itself was repealed by the Merchant Shipping Act, 1862.

In the case of *Johnson v. Chapman*, 1865, where the deck-cargo (timber) broke adrift in consequence of stormy weather, and impeding the navigation, and endangering the ship, was necessarily thrown overboard:—*Held*, that the shipper was entitled to claim general average in respect thereof as against the ship-owner.

Arnould [*Marine Ins.* 3rd ed. 1866] put the point with clearness:

Goods carried on deck, as they are exposed to a greater hazard than goods carried in the ordinary way, are not covered by a general ins. in the common form on goods and merchandize, and unless they are so carried by virtue of any general and well-known custom of the trade in which the ins. is effected; for then the underwriter is presumed to be acquainted with such usage, and may therefore fairly be supposed to undertake the peculiar risk. As it is only a certain description of goods, in any trade, that would be so exposed, it may be doubtful whether, even where sanctioned by usage, the goods ought not to be specifically described in the pol., so as to apprise the underwriter of the extra risk he is to run.

In the winter of 1872 meetings of underwriters and secretaries of local ins. asso. were held in the sea-ports of the Tyne, "to consider the best means to be adopted to put

a stop to the serious loss of life and property resulting from the carriage of deck-cargoes of timber and deals"—these being brought in large quantities by the colliers on their return voyages from the Baltic and North American ports. The following resolutions were adopted :

1. That the deputations present request the various offices which they represent to insert in the policies of 1873 the following clauses:—"That no vessel be insured when sailing with any timber or deals on deck (except two spars fit for lowering yards or topmasts) from any port whatsoever before the 1st April nor after the 1st September, the time of clearing at the Custom House to be deemed the time of sailing, provided the ship is loaded and ready for sea at noon." 2. That the Government be memorialized to reimpose the law restricting the dates of shipment of deck-loads, which law was repealed by the Merchant Shipping Act of 1862.

It was estimated that fully 50 p.c. of the large sailing ships which loaded timber on the St. Lawrence in the fall of 1872 were either abandoned on the Atlantic or were not accounted for ; and this great loss of shipping and cargo, with too frequent loss of life, is attributed by the underwriters to deck-loads.

Mr. Plimsoll, M.P., has succeeded in calling further attention to this shameful practice.

The latest information upon the subject [June, 1873] is that the Russian Minister of Commerce, at the instance of the English Gov., is collecting evidence of nautical men, at the Baltic ports, with a view to a comprehensive consideration of the question of deck-loads.

DECLARANT.—A person who makes a declaration.

DECLARATION.—A proclamation, or affirmation, open expression, or publication. In law, a statement on the plaintiff's part of his cause of action. Declarations are allowed in certain cases in lieu of oaths. [SOLEMN DECLARATIONS.] Proposals [applications] for ins. contain almost invariably a "declaration" of the truth of the statements contained therein. This is technically called "the Declaration." [DECLARATION, THE.]

DECLARATION OF AGE.—Every person seeking accident, health, or life ins., or to purchase an annuity, is required to declare his age : and such a declaration amounts to a warranty. In cases where proof of or "admission of age" is required before completing the contract, the fact may be estab. by certificate in the usual manner [CERTIFICATE OF AGE] ; or failing that, by means of a solemn declaration of the parents, or some other person who has known the proposer during his life ; or failing all else, by solemn declaration of the person himself. [CLAIMS—Life.]

DECLARATION OF FIRE LOSS.—See CLAIMS—Fire.

DECLARATION OF INTEREST.—In view of checking a tendency to gambling in connexion with Marine Ins., which from a very early period and from time to time since has manifested itself, various steps have been taken by the legislature. Hence, in 1746, it was enacted by 19 Geo. II. c. 37, that "in all actions or suits brought or commenced by the assured upon any pol. of assu., the plaintiff in such action or suit, or his attorney or agent, should within fifteen days after he or they should be required to do so in writing by the defendant, or his attorney or agent, declare what sum or sums he had assured or caused to be assured in the whole, and what sums he had borrowed at Respondentia or Bottomry, for the voyage in question, in such suit or action."

During the wars with our Continental neighbours in the last century, other reasons arose for ascertaining in whose interest various marine ins. were effected.

By the 25 Geo. III. c. 44 (1785), it was enacted that it should not be lawful for persons residing in Gt. Brit. to cause a pol. of marine ins. to be made without inserting in the pol. either their own names or the name of the person who effected the pol. as their agent ; and that when the person interested resided out of Gt. Brit., the name of the agent should always be inserted. In view of conforming to this measure, it came to be regarded that where several persons were interested in an ins., all their names should be mentioned ; and that when a pol. was effected on behalf of a principal resident abroad, the agent should reside in Gt. Brit., and be described as agent in the pol. These requirements were found to be detrimental to the bus., and the act was repealed. The repealing Act was the 28 Geo. III. c. 56 (1788), which enacted :

It shall not be lawful for any person or persons to make or effect, or cause to be made or effected, any pol. or policies of assu. upon any ship or ships, vessel or vessels, or upon any goods, merchandizes, effects or other property whatever, without first inserting, or causing to be inserted, in such pol. or policies of assu., the name or names, or the usual style and firm of dealing of the consignor or consignors, consignee or consignees of the goods, merchandizes, effects or property so to be insured ; or the name or names, or the usual style and firm of the person or persons residing in Gt. Brit., who shall receive the order for, and effect such pol. or policies of assu., or of the person or persons who shall give the order or direction to the agent or agents immediately employed to negotiate or effect such pol. or policies of assu. . . . Every pol. or policies of assu. made or underwrote contrary to the true intent and meaning of this Act shall be null and void.

The detailed exactitude of this measure in a great degree frustrated the intentions of its framers : for it became, and has since remained, the custom for brokers to ins. in their own names, without in any way disclosing the name of the principal : although *after the pol. has been obtained*, the broker usually declares by indorsement on the pol. for whose use, benefit, or interest the same is made. When such a declaration of interest has been once made, it cannot be departed from ; but where no indorsement is on the pol., an action may be brought in the name of the broker. This was so settled in *Godin v. Lond. Assu. Corp.* in 1758, since which there are many other decisions on the same point.

There is another phase of Declaration of Interest. A merchant who has ordered goods from abroad is desirous of effecting an immediate ins. upon them, while he is ignorant of the ship by which they may be sent. In times of war, when merchant vessels take such opportunities of sailing as the varying fortunes of the belligerents chance to afford, this uncertainty is considerably increased. Hence the practice to effect ins. on goods "on board any ship or ships," *upon condition of declaring on the face of the pol. as soon as the insured becomes aware of it, and, if possible, before the loss, the name of the ship or ships on board of which they have actually been loaded.* [SHIP OR SHIPS.]

DECLARATION OF PARIS.—A State Paper agreed upon at the conclusion of the Crimean War (26th Feb. 1856), by the representatives of Gt. Brit., France, Austria, Russia, Sardinia, and Turkey, in which the following agreements on maritime law were come to: 1. Privateering is abolished. 2. The neutral flag covers enemy's goods, save contraband of war. 3. Neutral goods, save contraband of war, are not liable to capture under enemy's flag. 4. Blockades to be binding must be real. [LETTERS OF MARQUE.] [PAPER BLOCKADES.]

DECLARATION OF TRUST.—To prevent the inconvenience which arose from parol declarations and secret transfers of uses, the 29 Car. II. c. 3, s. 7 (1676), requires that all declarations or creations of trusts, or confidences of any lands, tenements, or hereditaments, shall be manifested and proved by some writing signed by the party, who is by law enabled to declare such trust; or by his last will in writing. It does not appear that this stat. extends to declarations or creations of trusts of mere personality. But these certainly should for safety sake be in writing.

DECLARATION OF USES.—These also must be in writing, under the provisions of 29 Car. II. c. 3, s. 7 (1676).

DECLARATION OF WAR.—A usual, but not a necessary, prelude to the commencement of hostilities between nations. When such a declaration is made or impending, and both or either of the belligerents are maritime states, it behoves marine underwriters to be very much on the alert. The whole subject will be discussed under WARFARE, MARITIME.

DECLARATION, THE.—The Declaration in a proposal for ins., whether life, fire, accident, or any other branch of the bus., is generally to the effect that the statements made by the proposer are true, and are to be taken as the basis of the contract; and that forfeiture of all rights under the pol., and of all prem. paid in respect of that particular ins., is to be made in the event of any wilful or fraudulent mis-statement having been made. The law will determine what amounts to wilful and fraudulent mis-statement.

The declaration is usually recited in the pol.; followed by a stipulation that the statements contained in the proposal are to constitute the basis of the contract.

Fire Ins.—The pol. settled and adopted by the National Board of Fire Underwriters in N.Y. contains the following:

If an application, survey, plan, or description, of the property herein insured is referred to in this pol., such application, survey, plan, or description, shall be considered a part of this contract, and a warranty by the assured.

Life Ins.—In the case of *Huguenin v. Bayley* [Director of *Albion L.*], 1815, the conditions of ins. required a declaration of the state of the health of the insured; and the policy was to be valid only if the statement was free from all misrepresentation and reservation. The declaration described the insured as resident at Fisherton Anger; she was a prisoner in the county gaol there:—*Held*, that it was a question for the jury whether the imprisonment was a material fact, and ought to have been communicated.

It has been *held*, in an action upon a pol. upon the life of a debtor in favour of a creditor, that the previous declarations of the debtor as to his habits are mere hearsay and inadmissible. It was not the debtor's contract, and he had no authority to bind the creditor by any statement he might make in regard to himself, whether true or false [*Rawls v. American L. Ins. Co.*]. So his statements after the issue of the pol. are equally inadmissible [*Rawls v. American Mut. L.*].

The forms of declarations vary with different offices; but the substance and meaning is nearly always the same. [CONCEALMENT.] [DESCRIPTION OF PROPERTY INSURED.] [FRAUD.] [MISREPRESENTATION.]

DECLARE A RISK.—To make known the contents of a parcel entrusted to a carrier for transportation, in contradistinction to the phrase, "Contents unknown."—*Griswold*. [TRANSPORT INS.]

DECLINE.—A term frequently used to imply a gradual wasting away, as in cases of CONSUMPTION, and in organic diseases of the intestinal canal. [ATROPHY.]

DECLINED LIVES.—Persons proposed to L. offices for acceptance, and refused at ordinary rates, or at all, in consequence of disease latent or active, or in consequence of unfavourable family history, are termed "Declined Lives." We take the following passage from an art. in the *Ins. Agent*, June, 1873:

The fear of being declined is constantly a nervous fear, and often baseless. It is astonishing at times to witness its existence where it might little be expected. There is always one remedy open to the man who fears being declined, although it is one which in the majority of cases there is no necessity for. He can consult his own medical adviser, or the family medical attendant, as to the advisability of his proposing, and it is hardly likely that he will be misled.

Such persons are sometimes designated "impaired lives." The whole subject will be fully considered under DISEASED LIVES, INS. OF.

DECLINED LIVES AND GENERAL LIFE ASSU., ANNU., AND REV. INT. CO.—This Co. was projected in 1847 by Mr. Nicholas Welton, "Gentleman," of Pentonville. It is only one of many that have been projected on this idea. It did not proceed beyond prov. regis.

DECOMPOSITION.—The separation of the component parts or principles of bodies previously held together by chemical attraction. It is attended by an entire change of properties, either spontaneously or from chemical agency, and is thus distinguished from mere mechanical division.—*Hoblyn*. Decomposing animal and vegetable substances are found to be peculiarly detrimental to human life and health.

Decomposed hemp and flax have slain hundreds. Lancisi gives an account of an epidemic fever that raged for several summers in the town of Etruria, almost depopulating it. The cause was sought for, and found in the ponds at the lower part of the town, where hemp and flax were macerating: the practice was prohibited, and the fever no longer infested this otherwise healthy spot. The manufacture of indigo is equally prejudicial, both to those employed in it, and those residing near the manufactories: for in order to extract the colouring matter from this plant it is collected into large heaps, and after it has been drenched with heavy rains, it is then exposed to the scorching heat of the sun: active fermentation is set up, and coincident with this state a fearful exhalation of fever-producing gas.—*Haviland*, 1855.

DECREASING ANNUITIES.—These, as the term implies, are annu. commencing at a given sum, to be decreased either ann. or periodically, as determined by a pre-arranged scale, or by contingencies calculated to produce that effect. Mr. Chisholm, in the preface of *Commutation Tables*, furnishes simple formulæ for valuing such annu.

DECREASING INS. (Life).—A decreasing ins. is a contract whereby the asso. undertakes to pay a stipulated amount should the life insured die within a stated first period; a certain decreased amount should the death occur within a given second period; a still further decreased amount should the death occur within a third period, and so on, reducing from time to time down to a nominal sum, or nil. For instance, a person may on this plan ins. his life for the whole term of existence, beginning at £100, and decreasing £10 each year. Ins. of this class, extending over the whole term of life, are very rarely effected. Term insurances on this plan are sometimes required for partnership purposes. Tables of rates of such ins. are given in the prospectuses of numerous ins. offices.

DECREE (from the Latin *decretum*).—An edict; a law. Also a judgment of the Court of Equity. It was held, in the case of *Crockatt v. Ford*, 1856, that in case of a lost pol., a decree of a Court is a sufficient protection to the co. to pay under, without having the right to demand any indemnity from the person to whom the money is paid.

DECREE ARBITRAL.—The award of an arbitrator.—*Scotch Law*.

DECREMENT (Lat. *decrementum*).—Gradual decrease; diminution. The part by which a variable quantity is conceived to be diminished. It is opposed to *increment*, a term of frequent use in the differential calculus. Simpson was the first who used the word in relation to life contingencies.

Assuming that a million of male children are born alive (for the stillborn must be excluded from the calculation), if it be found that 180,492 would die in the first year, it follows that the difference, namely, 819,508, will enter upon the age of one year. Suppose the law of mort. indicate that the proportion that will die, out of a million, between the age of one and two, is 30,000; it is plain that the number who would die out of 819,508, will, by the rule-of-three, be 27,863; and consequently that the residue, namely, 791,645, will remain alive, and so enter on the age of two years. This method being pursued through each and every age, to the extreme term of life, when none of the original million survive, the result is a T. of Mortality in the form in which it is commonly presented in the works of writers on this branch of science. In the T. thus constructed there is a col. containing the number of living persons who, out of the original million, live to enter upon each and every year. Of this rank of numbers the difference between each term and its next succeeding one, is the number who die in that particular interval; that number is the measure of what is technically called the *decrement* of life for that particular year, and the whole of the decrements for each and every year taken collectively is termed the decrement of life. The decrement of life is not only not the same as the law of mort., but is carefully to be distinguished from it. The law of mort. is derived from observing the number who die out of one and the same number, which is always supposed to enter on each and every year. The decrement of life constitutes a rank of numbers arising out of the successive deaths; that is, out of the original million in the first year; out of the survivors of that million in the second year; out of the survivors of those survivors in the third year, and so on. In the first case the number of the living is always the same; the number that die is the variable quantity. In the second case, the number of the living is the variable quantity,—while the number that die may remain pretty much the same for a succession of years; and on casting the eye on the Tables constructed in the ordinary mode, it will be seen that the number often does remain the same for a considerable series of years.—*Dr. Southwood Smith*.

In vol. vi. of *Assu. Mag.* [1857] there is given: *A Formula for expressing the Decrement of Human Life; by the late Dr. Thomas Young*.

DEDBANA [DÆD-BANA].—An actual homicide or manslaughter.

DEED.—A written formal contract or agreement, under seal. The formula, "I deliver this as my act and deed," occurs in a charter as early as 933.—*Fosbrooke*. Deeds in England were formerly written in Latin or French. The earliest known instance of English being employed is in 1343.

DEED OF COVENANT.—Covenants are frequently entered into by a separate deed, for title, or for the indemnity of a purchaser or mortgagee, or for the production of title-deeds. A covenant with a penalty is sometimes taken for the payment of a debt, instead of a bond with a condition; but the legal remedy is the same in either case.—*Wharton*.

DEED-POLL.—A single deed in the form of a manifesto or declaration to all the world of the grantor's act and intention. If there be no recital, it usually speaks in the first person; but where recitals are introduced, it speaks in the third person. A pol. of ins. partakes of the nature of a deed-poll.

DEED OF SETTLEMENT.—In the case of cos. or asso. for trade or profit formed prior to 1855, and in the case of ins. asso. formed prior to 1862, it was necessary that there should be a deed of partnership,—usually termed deed of sett., sometimes deed of constitution,—by means of which the contemplated objects of the asso. should be defined, and powers taken for carrying out the same. The rights and liabilities of the partners in their dealings with third parties, and amongst themselves as an association, are also regulated by such deeds, so far as the same are in accordance with the powers of the Common, or provisions of the Statute, Law.

The provisions of deeds of sett. may be divided into two classes: *First*, those which relate to the constitution of the co., and are, so to speak, the primary conditions of its institution and continuance. These are binding upon the whole body, and cannot be varied except with the consent of every individual member, or by virtue of an express power, applicable to the case in question, and authorizing the alteration, which is generally carried into effect by the resolutions of one or more ordinary or extraordinary general meetings of the members. *Secondly*, those which relate to the administration of the affairs of the partnership, and the alteration and modification of which are either expressly provided for, or are consistent with the general scope of the deed and object proposed. The latter may be varied with the consent of the majority of the partners at one or more general meetings of shareholders, to be called in manner appointed by the provisions of the deed; or, in the absence of any provision, should such a case occur, after notice to the whole body.—*Bunyon, Law of Life Assn.*, 1868, p. 146.

It is remarkable with how little care and consistency such deeds are, or rather were, frequently drawn,—arising no doubt, in a great measure, from want of practical knowledge of the essential points of practice in ins. offices, on the part of the draughtsman or the solicitor instructing him. The unsettled state of the law in earlier times had some share in the incongruities which prevail. Most of the early ins. asso. have found it necessary to have their deeds supplemented by special Acts of Parl. Some of them have required frequent aid in this form; while some few have taken the more radical but sensible course of having new deeds adapted to the present requirements of their bus.

The Life Assu. Cos. Act, 1870, sec. 13, provides as follows: Every co. which is not regis. under the Cos. Act, 1862, shall cause a sufficient number of copies of its Deed of Sett. to be printed, and shall furnish, on application, to every shareholder and pol.-holder of the co. a copy of such Deed of Sett. on payment of a sum not exceeding 2s. 6d. [INS. ASSO., CONSTITUTION OF.] [LEGISLATION FOR AND AFFECTING INS. ASSO.]

DEEDS AND WRITTEN SECURITIES NOT INSURED.—Fire ins. pol. usually contain an exception or condition that books of account, written securities, bills, bonds, securities for money, deeds and writings of any description, and ready money, cannot be insured.

DEEP IN THE WATER.—A vessel when laded to her full capacity, or beyond, is technically designated as "deep in the water." [DECK-LOADS.]

DEERE, RICHARD T., was Sec. of *London and County Cattle Ins. Co.* in 1856. He afterwards became Superintendent of Agents for the *Provincial*, and finally retired from ins. pursuits some years since.

DEFÆCATION (from *fæces*, dregs, excrement).—The process of removing the dregs from liquid; also the act of evacuating the bowels.

DEFAULT.—Omission of that which a man ought to do; neglect. Hence *Defaulter*, one who makes default.

DEFEASIBILITY (from the French *défaire*, to make void).—That which may be annulled or abrogated.

DEFEAZANCE.—A collateral deed accompanying another, providing that upon the performance of certain matters, an estate or interest created by such other deed shall be defeated and determined.

DEFECTIVE TITLES.—Various projects have been set on foot from time to time for the purpose of indemnifying the holders of property with defective title. These will be spoken of in detail under MORTGAGE INS.; and TITLES, INS. OF.

DEFECTS IN PROOFS OF LOSS.—These defects and what amounts to a waiver of them will be discussed under LOSS; and under WAIVER.

DEFECTUS SANGUINIS.—Failure of issue. [ISSUE, INS. AGAINST.]

DEFENCE (from the Latin *defensio*).—Popularly a justification, protection, or guard; in Law a denial by the defendant of the truth or validity of the plaintiff's complaint. At Common Law a defendant, after a plaintiff has "declared," must either demur or plead. One or other of these courses he is bound to take if he mean to maintain his defence. If he do neither, but confess the plaintiff's right, or say nothing, the Court immediately gives judgment for the plaintiff. In *Equity* the practice differs in some respect; but the principle is the same.

DEFENDANT [abbreviation *Def.*].—The person sued in a personal action or suit, or indicted for a misdemeanour.

DEFENDER.—Scotch for defendant.

DEFENDER FIRE AND LIFE INS. CO.—Founded in 1847, with an authorized cap. of £1,000,000, orig. in shares of £50, but afterwards reduced to £25, of which about £400,000 was subs.

This Co. was founded by the Pawnbrokers of Lond., or perhaps, more strictly speaking, of Great Britain, in view of protecting themselves from what they regarded as the unjust charges of the other F. offices upon pawnbrokers' risks. The prosp. said: "It originated as a measure of self-defence, in consequence of the increased charges for ann. prems. made by a general combination of the existing F. ins. cos. upon several classes of tradesmen and others."

There were no special features in the regulations or conditions of this office differing materially from those of other offices of the period, either in the fire or life branches.

The Board was composed of the best known or more wealthy pawnbrokers of Lond., with Mr. Richard Attenborough for Chairman, and Mr. Thomas Cotterell for Deputy-Chairman. Mr. John Kelday was Man. Director; and Mr. Geo. Howard was Act. of Life Department.

The Co. had branches in Liverpool, Exeter, Bristol, Leeds, Manchester, Newcastle-upon-Tyne, Edinburgh, Glasgow, and Aberdeen; and it also had extended connexions upon the Continent of Europe. The amount of F. ins. duty collected by the Co. for the year 1856 amounted to £7772.

In 1857 the Co. trans. its F. and L. bus. in Gt. Brit. to the *Leeds and Yorkshire*, and paid £2000 to that Co. as a consideration for relieving the *Defender* of all liabilities in respect of its Brit. pol. and guarantees. The Co. thereupon ceased to carry on any bus. in Gt. Brit.; but continued to transact bus. upon the Continent of Europe, and especially in France. An office was continued in Lond.

In the following year the whole of the foreign bus. was trans. to and undertaken by the *National Assu. and Investment Asso.* [Bank of Deposit]. In Oct. 1858, Mr. Peter Morrison and 7 other directors of the *Bank of Deposit* became directors of the *Defender*, in lieu of the 7 former directors, who had trans. their shares. From that date onwards there were no acting directors of the *Defender* other than those of the *Bank of Deposit*; and, indeed, the Co. was managed as one concern with the latter.

A call of 4s. per share was made in April, 1858, but was responded to only by about one-half of the shareholders: many of the solvent shareholders, it was alleged, declined to pay.

In Jan. 1862, a petition was presented by a shareholder to wind up the affairs of the Co. and discharge its liabilities. The order was made; and the Co. appears to be still under the protection of the Court.

DEFENERATION (from the Latin *fœnero*, to lend upon usury).—The act of lending money on usury.

DEFERRED ANNUITY.—An annuity the payment of which is to commence on or after a certain period not yet arrived is called a *deferred annuity*; or if any way dependent upon lives, then a *deferred life annuity*.

The *Commercial Credit Mut. Ins. Asso.*, projected in 1845, proposed to grant deferred annu. to such of its subs. as, after a series of years of membership, should not become bankrupt. Also to grant deferred annu., "to commence immediately subsequent to bankruptcy." [COMMERCIAL CREDIT INS.]

DEFERRED LIFE ANNU.—These are granted by the Commissioners of the National Debt under the authority of 16 & 17 Vict. c. 45, s. 2. In vol. x. of *Assu. Mag.* there is a letter from Mr. J. W. Stephenson, *On the Tables of Deferred Annu. pub. by the National Debt Office.* The writer says:

Having had occasion to refer to the above-mentioned T., I have been surprised to find that they are not computed in the usual way, but apparently on some principle wholly different from it. I append instances in respect of single prems. (but the same remark applies to ann. ones), in which your readers will observe that the prems. charged by the Gov. are for the most part greatly in excess of those resulting from calculations made on the true principles.

DEFERRED LIFE INS.—Endowment ins., payable only at 14, 21, or previous to marriage, are a species of *Deferred Ins.* Some survivorship ins. come within the same category. [ENDOWMENT INS.] [SURVIVORSHIP INS.] Mr. Chisholm, in the intro. of his *Commutation T.*, furnishes some neat formulæ for ins. of this class.

DEFERRED TEMPORARY ANNUITIES.—Where an ann. is to commence at the expiration of a given time, and to cease at another and more remote period, it is called a *Deferred Temporary Annu.*

DEFICIT.—Something wanting.

DEFINITION OF CONTRACT.—See **CONTRACT OF INS.**

DEFLAGRATION.—To be utterly consumed by fire.

DEFORMITIES.—Deformities require careful notice, even when the immediate effects of the disease or injury that may have caused them have long passed away, and the general health is completely restored.—Brinton, *On the Medical Selection of Lives for Assu.* The writer continues:

Thus, as regards the *chest*, its shape is rarely much altered by disease or injury, without a considerable diminution both of its capacity and mobility. Each of these losses entail a corresponding damage upon the functions of the chest as the organ of respiration. And though this damage may not reduce the action of the organ below what can effect all the breathing ordinarily necessary, it becomes much more serious when any disease (however temporary) engages another portion of the lung. For then the unaffected structures, which might otherwise have compensated, by their increased energy, for that impairment of the organ as a whole which such disease implies, are perhaps unable to do so, owing to the add. impairment produced by the deformity. Hence the thoracic deformity left by pleurisy or emphysema, or even by distortion of the spine, may render fatal a limited attack of bronchitis or pneumonia, such as a healthy person would have easily recovered from. And when we consider what a large fraction such diseases of the respiratory organs form of the whole causes of death in this climate,—or, in other words, considering their moderate fatality, how very unlikely any person is altogether to escape them during a long series of years,—we shall find reason to conclude that the presence of such deformity implies what must, in the mass of cases, amount to a serious diminution of the prob. of life.

How far the deformity present in any given instance is likely to injure the function of the chest as an organ of respiration, can of course only be determined by its nature and amount, as well as by other circumstances that are sure to vary in every case. With proper limitations great aid in such an inquiry is afforded by the spirometer.

There is one deformity of the chest, however, which we may notice, as being rarely a valid objection against those in whom it is found uncomplicated. This is the peculiar shape to which the term "pigeon-breasted" is generally applied: owing to the sternum being unusually projecting, and the chest itself flattened on each side. This shape, which appears to be due to a want of proper hardness in the costal cartilages, and in the adjacent ends of the ribs prior to their ossification,—and which I have found in several instances to be hereditary,—can be shown by all ordinary tests (including the spirometer) to inflict comparatively little damage on the capacity of the chest.

Deformity of the *pelvis* is of course not to be detected in ordinary life office examinations; save where it may be fairly inferred from the existence of considerable malformation in the adjacent segments of the spine. And though we can hardly go the length of the zealous French accoucheur, who thought that every village *cure* ought to possess an accurately graduated pelvimeter, and by its aid reject all female candidates for matrimony whose parturition would much endanger themselves or their offspring, yet there can be no doubt that, except in women past the age of child-bearing, the existence of much pelvic deformity affords sufficient grounds for rejecting a female life.

The effect of a loss of limb, or a special sense, is rarely necessary to estimate. Amputation of a limb for disease is said to confer an increased risk of visceral—especially of pulmonary—disease. But here the previous malady would itself enter into our calculations, as well as the present health (including any appearances of latent mischief) of the person examined. Amputation for injury or accident is said to be often followed by a plethoric state, and a tendency to corpulence, that are attended with increased risk to the constitution. These, however, would also be visible facts, that could scarcely escape notice.

Finally:

And in respect to these mutilations, as well as to complete blindness, deafness, and the like, we may sum up their other chief indirect effects in the general statement:—that whatever interferes with the exercise natural to a healthy individual, or deprives him of the proper guards against accident which nature furnishes, of course increases his risk of disease and injury respectively. But how far it will do so must be judged of from the details of each case—in other words, the habits and circumstances of the individual. In the affluent classes, the care and attention that wealth can secure often reduce the influence of such accidents to a minimum that may practically be overlooked altogether.

DEFOSSION.—The punishment of being buried alive.

DEFUNCT.—One that is deceased; a dead man or woman.—*Ency. Lond.*

DEGENERACY OF HUMAN RACE.—It is, and for some time past has been, a pet theme with many writers, to proclaim the physical degeneracy of the human race, and especially that section of the human race which inhabits the British Islands. We can do no more here than express a general belief that *so long as excess of alcoholic stimulants is so largely indulged in, and nearly every article of food so shamefully adulterated, the race cannot do otherwise than deteriorate.* The subject will be considered in its various aspects under **LIFE, HUMAN.**

DEGENERATION (from *degenero*, to become unlike its kind).—A change of condition, but always for the worse, as when a structure of the body passes into a cancerous or tuberculous state.—*Hoblyn.*

DEGREE, QUESTION OF.—A question of degree is used in contradistinction to a question of principle or kind.

DEHAIS, MONS. E., Editor of the *Echo des Assurances*, generally considered to be the organ of the mutual societies in France.

DEHORS (from the French).—Foreign to, outside, out of the point in question.

DEJECTIONS.—The modern designation for the *excreta* of human beings.

DEL CREDERE (from the Italian).—An agreement by which a factor, when he sells goods on credit, for an add. commission [called a *del credere* commission] guarantees the solvency of the purchaser and his performance of the contract. Such a factor is called a *del credere* agent. He is a mere surety, liable only to his principal in case the purchaser makes default. This practice is sometimes applied to Ins. contracts—the Brokers insure the Insurers.

DELABORDE, MONS. J., pub. in Paris in 1838: *Traité des avaries particulières sur marchandises.*

DELAUNE, BENJAMIN.—This gentleman occupied a somewhat prominent position in London in the 17th century. He proposed to the Corp. of London a scheme for *Fire Ins.* very shortly after the Great Fire of Lond., 1666, of which we shall speak more fully in *FIRE INS.*, HIST. OF.

He also collected and recorded various facts regarding the *Sudor Anglicus*, or sweating sickness; several visitations of which occurred in England. [LONDON.] [PLAGUE.]

DELAWARE, INS. LAWS OF STATE OF.—The first law we meet with for the regulation of ins. cos. in this State is that of 1867, c. 117. But the Revised Code of 1852, c. 76, contained the following:

3. A married woman may, in her own name or otherwise, effect ins. for her sole use on the life of her husband, for any definite period, or for the term of his life; and if she survive him, the sum due upon such ins. shall be payable to her, for her own use, free from the claims of the creditors or representatives of her husband; but such exemption shall not apply where the amount of prem. ann. paid shall exceed 150 dol.

4. In case of the wife's death before the husband, the amount of such ins. may be made payable to her children or grandchildren.

This Revised Code also contained general provisions relating to corporations.

By the special Ins. Law of 1867 a tax of 100 dol. ann. is imposed upon ins. cos. transacting bus. in the State; and a State license is required for each agent at a charge of 25 dol. A similar license is required for life agents; and there is a tax of 2½ p.c. on the prem. received. The Sec. of State has the supervision of ins. asso.

DELAY.—Where a ship is insured at and from a given place, if there is any *unreasonable delay* in her sailing, the underwriter is discharged. It is not necessary that the ship should be at the port in question at the time of effecting the pol.; but there must not be an unreasonable delay in her going there. A delay in landing the goods insured will not discharge the underwriter, where there is an *usage* in the trade to keep the goods on board.—*Park, 8th Ed. by Hildyard.* [DEPARTURE.]

It is a rule that the ship shall proceed on her voyage not only by the shortest and safest course, but also with all reasonable expedition; and in the case of *Hartley v. Buggin*, 1782, it was determined that any unreasonable delay was equivalent to a deviation.

DELEGATION.—The assignment of a debt to another; the entrusting another with the general power to act for the good of those who depute him. In the latter case the legal maxim must be remembered:—*Delegatus non potest delegare*: a delegate cannot delegate.

Questions of delegation sometimes arise in regard to the powers of agents; and especially in the U.S., where the general agents of ins. asso. exercise somewhat wider powers than are recognized here. It will be useful to understand the law of the U.S. on this subject, as laid down by Mr. Bliss, in his *Law of Life Ins.*, 1872:

In L. ins. it is believed that the local agents have no such power [as is the custom in some branches of bus.] to appoint sub-agents, while general agents who are placed in charge of a particular State or district have such power. An agent to issue pol. which were not to be valid till countersigned by him cannot delegate the power to countersign. But though he cannot delegate his general authority, he is entitled to perform, and must necessarily perform, a great number of his acts and functions through the aid of persons to whom he delegates his authority; and it was therefore held, that where an agent authorized to grant temporary ins. procured applications through sub-agents, which he subsequently acted upon and forwarded to the Co., the latter was bound. So, if he appoints a sub-agent with the knowledge of the Co. But the agent of an accident ins. co. who has absolute power to ins. against accidents may appoint sub-agents, as the agency is not one requiring skill or discretion—tickets being sold to all who apply for them.

Some of these points are supported by the authority of English cases.

DELFT, IN HOLLAND.—It is reported that in 1535 a terrible fire broke out in this city which destroyed the two churches, many monasteries, 9300 houses; and much people and wealth were consumed, and only 300 houses left standing.—*Isaacson.*

DELIRIUM.—Raving; frenzy; disorder of the brain. Hence *delirium tremens*: a term intended to convey the idea of delirium co-existing with a tremulous condition of the body or limbs.

DELIRIUM TREMENS.—The term derived as last shown. It is frequently called the "Drunkard's Delirium" and *mania a potu*; but it may be produced by any cause of cerebral exhaustion or shock.

Dr. Allen Adams, in his *Medical Examinations for Life Ins.*, 5th ed., 1869, says:

Delirium Tremens, Dipsomania, etc., previously existing, imperil the risk. It is only after the lapse of a long period of time and great weight of collateral moral evidences of reform, that a party who has suffered from them can be accepted.

In our art. CONCEALMENT we have referred to the important case of *Hutton v. Waterloo Life*, 1859, in which the law as applied in England is stated. In the U.S., in the case of *Bickford v. N.Y. State Life Ins. Co.*, 1869, the judge, with some expressed misgiving, ruled that the concealment of an attack of delirium tremens did not necessarily void a warranty that the insured was a person of correct and temperate habits. The subject will be referred to under INTemperance, and SUICIDE.

DELIRIUM TREMENS, DEATHS FROM (Class ZYMOTIC, order Dietic), included by Reg.-Gen. with Intemperance, under general head of ALCOHOLISM.—The deaths from this cause in England have shown some fluctuations: and happily now a tendency to decrease is visible. In ten consecutive years they have been as follows: 1858, 424; 1859, 545; 1860, 457; 1861, 415; 1862, 471; 1863, 471; 1864, 592; 1865, 612; 1866, 487; 1867, 369; thus giving a variation of, from 28 p. million of the pop. in 1859, to 21 in

1861, again rising high for 1864 and 1865, and coming down to 17 in 1867. Over a period of 15 years ending 1864, they averaged 26 p. million.

The deaths in 1867 were: males 326; females 43. Of the males, 2 died between 15 and 20; 9 between 20 and 25; 69 between 25 and 35; 117 between 35 and 45; 83 between 45 and 55; 34 between 55 and 65; 11 between 65 and 75; and 1 between 75 and 85. Of the females, 7 died between 25 and 35; 12 between 35 and 45; 9 between 45 and 55; 13 between 55 and 65; and 2 between 65 and 75.

In the *North British* Ins. Co. the deaths from this cause during a period of 37 years (1823-60) were returned as 11. The average duration of life after ins. was 7 years 2 months. The average expect. 32.02 years. The per-centage on total mort. 84.

In the *Scottish Amicable* Life, out of a total mort. of 773 lives between the years 1826-60, there were 8 victims to Dr. T., all of them between the ages 25 and 45. Dr. Fleming, the medical adviser of the So., says [*Medical Statistics of Life Assu.* 1862]:

Though none of the papers on which they were accepted indicate a fair suspicion of habits of intemperance, still, from the shortness of the duration of the assu. in some of them, it is difficult to suppose that they were strictly temperate when admitted. It is impossible for the directors and officials of any so. to be more careful and searching in their inquiries on this point than those of the *Scottish Amicable*. Though 8 deaths only are ascribed directly to intemperance, there can be no doubt that the number who were cut off by diseases induced by irregular habits was much greater. In an assu. co. transacting an extensive bus. premature deaths from this cause cannot be avoided. It may happen that an individual who is intemperate will elude the utmost vigilance, and get his life assured; others will acquire the unfortunate habit after being accepted.

In the *Standard* L., during the quinquennium 1850-55, the deaths from this cause reached nearly 2 p. c. of the entire deaths in the Co. Dr. Christison spoke of this as an alarming increase upon former experience; adding, "that in every instance there has been apparently satisfactory evidence that the vice of excessive intemperance was not contracted till some time after acceptance." In the later quinquennium, 1865-70, they were under 1 p.c., viz. 10 out of 1190 deaths. Of the insured so dying 6 were English, 2 Irish, and 2 Scotch.

Mr. Mann, in his *Medical Statistics of Life Assu.*, 1865, reviewing some of the preceding experience of the life offices, points out that more than half the mort. (54.54 p.c.) was in the case of persons between 40 and 50 years of age; and more than one-fourth of it (27.27 p.c.) between ages 30 and 40. He asks: "May it not be inferred from these obs. that of those assured lives in whom drinking habits have been formed, either before or after acceptance, only a few survive beyond 50 years of age?"

DELIVERY OF THE POLICY.—Questions have often arisen regarding the effect of the non-delivery of a pol. after a contract for ins. has been made. The law, as it stands both here and in the U.S., has been very clearly expressed by Judge Hare, of the Pennsylvania District Court:

If the minds of the parties meet in an agreement for ins., the pol. will be valid *without an actual delivery*. A binding contract will not be allowed to fail, because the instrument, which is the evidence of it, is retained by the covenantor. His keeping will, under these circumstances, be regarded as that of the covenantee. But, on the preliminary question—is there such a contract?—it must always be a material inquiry whether the party who is alleged to have bound himself did any act manifesting an intention to put the instrument beyond his control, and render it the property of another party. If he did not, the obligation is *prima facie* incomplete; and those who allege the contrary must make out their case by proof.

Delivery of the pol. may be *actual*, as when delivered to the insured or his agent by the officers or agent of the co.; or *constructive*, when the pol. is made out and remains at the offices of the co. subject to the order of the insured.—Griswold's *Fire Underwriter's Text Book*, 1872.

In the case of *Cooper v. Pacific Mutual Life Ins. Co.*, 1872, the facts and ruling were as follow: A wife made application to the agent of the Co. for a pol. on the life of her husband, and paid 50 dols. in accordance with the Co.'s rules, which was to be applied to the first year's prem., provided the risk should be taken. In due time a pol. was made out and forwarded to the agent for delivery; but before it was delivered the husband died, whereupon the agent, being tendered the bal. of prem., refused to receive it:—*Held*, that there was a valid contract for a pol.; that upon the taking of the risk, the 50 dols. became the property of the Co., and the insured became entitled to the pol.; and that such a contract was as available to sustain an action for the amount of the ins. as if the pol. had been delivered.

There are other and similar cases in the law-books of the U.S. See Bliss on the *Law of Life Ins.*, 1872.

DELIVERY OF PROOF OF LOSS.—See **LOSS**; **PROOF OF LOSS**.

DELLA GIURISPRUDENZA MARITIMA COMMERCIALE, ANTICA E MODERNA.—A work pub. in four vols., between the years 1806-8, by Luigi Piantanida, a Milanese advocate, and dedicated to the First Emperor Napoleon. [PIANTANIDA.]

DELLI ASSICURAZIONI MARITTIME.—The title of the famous treatise on Maritime Assu. pub. by Baldasseroni in Florence in 1786.

DELPRATT, J., Superintendent of the West of England branch of *Imperial F.* since 1846.

DEMAND.—A claim, a challenging, the asking of anything with authority, a calling upon a person for anything due. It may be in the form of an action at law, or otherwise.

DEMEASE.—Death.

DEMENTIA.—Loss of intellect, sudden or gradual. When occurring in old age, it is called *dementia senilis*.

DEMEUR, M. ADOLPHE, pub. in Brussels, 1859 and 1865, *Sociétés Anonymes de Belgique*, 1857-65. (2 vols. large octavo.) The introduction gives a general exposition of the Belgian Code governing the regulations of anonymous societies. The body of the work is a compilation of the stat. and amendments imposed upon the societies as enumerated, banking, ins., etc.

DEMISE.—A grant by lease; it is applied to an estate either in fee or for term of life or years, but most commonly the latter.

DEMONFERRAND'S (FRENCH) MORTALITY TABLE.—The age of each person is enumerated in the French census, although the returns of the ages are never pub. The registry of births appears to be complete in France; and the number of young men who annually attain the age of 20-21 is ascertained for the purpose of the conscription. The total number of males and females is enumerated every 5 years.

M. Demonferrand drew up from the departmental returns an elaborate abstract of the ages at which 5,952,352 males and 5,840,937 females died in the 15 years 1817-32. This, however, constitutes but little more than half the data required for the construction of a perfect Life T. The important element of the *enumerated ages of the living*, out of which the deaths occurred at the several periods of life, is wanting. M. Demonferrand did the best he could with the incomplete data at his disposal. He assumed that the French pop. aged 21 and upwards increased from the period of the births of the oldest individuals in his T. (age 103) at a rate averaging .0083, and he availed himself of the ascertained excess of births over deaths, as well as of the increase in the number of conscripts enumerated, in determining the living under 20, and fixing the rate of increase at all ages. The French pop. has increased slowly, and any error in this assumption would not, with the corrections which M. Demonferrand has laboriously applied, affect the resulting expectation of life to any very great extent. The expectations agree generally with those derived from the *English Life T.* (No. 1). The early part of M. Demonferrand's Table, which is correct, shows a higher mort. of infants under 2 years than the *English Life T.* (No. 1); and the number of males out of 100,000 born who attain the age of 20 is 6245; while 6601 attain that age according to the English observations.

EXPECTATION OF LIFE IN FRANCE—an approximative calculation by M. F. Demonferrand.

AGE.	Males.	Females.	AGE.	Males.	Females.
0	38'33	40'83	45	23'41	23'16
1	45'16	46'66	50	19'91	19'58
2	47'25	49'00	55	16'50	16'25
3	47'83	49'50	60	13'25	13'16
4	48'08	49'75	65	10'58	10'50
5	48'33	49'75	70	8'08	8'08
10	47'00	47'42	75	6'16	6'16
15	43'58	43'66	80	4'75	4'75
20	40'00	40'08	85	3'83	3'75
25	37'25	36'83	90	3'16	3'16
30	34'00	33'41	95	2'16	2'16
35	30'50	30'00	100	1'33	1'33
40	27'00	26'58			

The coincidence in the expc. of male and female lives at the higher ages is remarkable, as it is unusual. [FEMALE LIFE.]

The Reg.-Gen. says in his 5th Ann. Rep. (1843):

In France, for instance, where the ages of the living have never been abstracted, M. Demonferrand has constructed a Life T., which is prob. not very erroneous, from the ages at death; assisted, however, most essentially by the complete regis. of births, and the ann. enumeration of the young men who attain the age of 20.

Mr. Neison said hereon, 1857:

It is, however, right to remark that the French people, although so much advanced in scientific knowledge and civilization, are still indifferent to the advantages of a proper census of the people, and M. Demonferrand has been compelled, owing to the ages of the pop. being unknown, to resort to an expedient in the construction of his T. which, although generally unsafe, may in his particular instance probably not affect the value of the results in any serious degree.

DEMONSTRATION.—A certain or convincing proof of some proposition; such as the demonstrations of the propositions in Euclid's Elements.

The method of demonstration in mathematics is the same with that of drawing conclusions from principles in logic. Indeed the demonstrations of mathematics are no other than series of enthymemes; everything is concluded by force of syllogism, only omitting the premises, which either occur of their own accord, or are recollected by means of quotations.—Hutton.

DEMOSTHENES.—This great orator delivered his oration against Lacritus prob. about 340 years before our era—or more than 2200 years ago. The subject of his pleading was a *Bottomry Bond*. We have given in our art. **BOTTOMRY** a translation of this instrument, for the purpose of showing that it has practically undergone no change in form or purpose since that period.

DEMURRAGE.—In commercial navigation an allowance made to the master or owners of a ship by the freighter for detaining her in port longer than the period agreed upon for her sailing. It is usually stipulated in charter-parties and bills of lading, that a certain number of days, called running or working days, shall be allowed for receiving or discharging the cargo, and that the freighter may detain the vessel for a further specified time, or as long as he pleases, on payment of so much *per diem* for such overtime. When the contract of affreightment expressly stipulates that so many days shall be allowed for discharging or receiving the cargo, and so many more for overtime, such limitation is interpreted as an express stipulation on the part of the freighter, that the vessel shall in no event be detained longer, and that if detained he will be liable for demurrage. This holds even in cases where the delay is not occasioned by any fault on the freighter's part, but is inevitable. If, for example, a ship be detained, owing to the crowded state of the port, for a longer time than is allowed by the contract, demurrage is due, and it is no defence that it arose from port regulations, or even from the unlawful acts of the custom-house officers.

Demurrage is not, however, claimable for a delay occasioned by the hostile detention of the ship, or the hostile occupation of the intended port; nor is it claimable for any delay wilfully occasioned by the master, or owners, or crew of the vessel. The claim for demurrage ceases as soon as the ship is cleared out and ready for sailing, though she should be detained by adverse winds or tempestuous weather.—Chitty's *Commercial Law*, and McCulloch's *Commercial Dict.*

DEMURRER.—A pleading which admits the facts as stated in the pleading of the opponent, and referring the law arising thereon to the judgment of the Court, waits until by such judgment the Court decides whether he is bound to answer.

DEN AND STROND.—A liberty for ships and vessels to run, or come, ashore.

DENGUE, OR DANDY FEVER.—A febrile affection, *sui generis*, commencing suddenly, and associated from the commencement with severe pains in the large and the small joints. It appears to have been epidemic in the East Indies, and to have passed to the Southern States of North America, where it has been called "break-bone fever."—*Hoblyn*.

Dengue, which has prevailed so generally in Calcutta, is gradually extending far and wide in India. The disease, as we long ago intimated, first of all attacked the garrison at Aden, where it was believed to have been introduced from Zanzibar. Few of the Europeans resident at Aden escaped. It is evidently a highly contagious and specific form of fever, but happily attended with little or no danger to life. It does not appear to be identical with scarlatina. The temperature chart of the two diseases is different, and Dengue does not seem to be followed by the sequelæ that are so common after scarlatina.—*Lancet*, June, 1872.

Dr. Christie, Physician to His Highness Syud Bargash, Sultan of Zanzibar, forwarded to the *British Medical Journal* (June, 1872), an account of the character of this disease. He had been called upon to treat such an epidemic recently in Zanzibar. The first symptoms are those of severe muscular and articular pains accompanied with fever, and on the fifth day an eruption resembling erysipelas, followed by swellings of the joints and glands, and subsequent shedding of the cuticle. The disease seemed to be communicable, for, as a rule, the entire household was attacked; but it was not at all common for two individuals in the same house to be attacked simultaneously: as one recovered, another was attacked. The Europeans suffered much more acutely than the natives, and very few escaped an attack. In no case did the disease recur in the acute form, and there were no fatal cases among either children or adults. He had found iodide of potassium in four-grain doses most successful in subduing the severe pains; and speaks of it as specific. Even in neglected chronic cases, where the pains had continued for months, relief was invariably afforded by the use of iodide of potassium. Dengue is not known as an epidemic in Europe, but has prevailed before epidemically in limited localities in India and America.

DENHAM, JNO. CHARLES, was Sec. of *Globe* in 1820, or before, down to 1852.

DENISON, G. R. HERBERT.—The following evidence regarding a gentleman of this name, who has been connected with the promotion of several ins. offices, was given before the Select Parl. Committee of 1853: Richard Wilsdon Morris, the projector of the *Medical, Legal, and General Co.*, was tried at the Old Bailey, at the August Sessions of 1848, for forgery, and was sentenced to be transported for ten years, but was, unfortunately for the public, set at large at the end of twelve months' imprisonment. This person, under the name of G. R. Herbert Denison, regis. a co. on the 9th July, 1851, entitled the *Reciprocal Life Assu. Co.*, Gt. Coram St., Russell Square. We observe that a gentleman of that name was actuary and sec. of the co. last named.

He also "promoted" the following ins. asso., several of which, we believe, were never regis., and were indeed merely "bubble cos." *Hope Reversionary Life Int. Co.*, 1851;

Reciprocal Fire, 1851; Absolute Security Life and Fire, 1852; United Kingdom Life, 1852; Beneficent Life, 1852; Industrial Life Assurance and Provident Society, 1852; Imperial Joint-Stock Bank and Life Assn. Co.

A Mr. G. H. Denison was under examination at Gt. Marlborough St. on the 3rd, 9th, and 15th Feb., 1853, on the charge of having uttered a false cheque for £50 on the National Provincial Bank of Ireland, Cork, there being no such bank in existence.

DENIZEN.—An alien born, but who has either obtained, *ex donatione regis*, letters-patent to make him (either permanently, or for a time) an English subject, or has acquired the privileges of a natural-born subject, pursuant to 7 & 8 Vict. c. 66 (1844). He is in a kind of middle state, between an alien and natural-born subject, and partakes of both of them. [ALIENS.]

DENMAN'S (LORD) ACT.—This Act, 6 & 7 Vict. c. 85 (1843)—for the Amendment of the Law of Evidence—allows parties to a cause to give evidence, etc.

DENMARK.—An ancient maritime kingdom in the north of Europe. The early occupation of the inhabitants was chiefly Piracy. About 1017 Canute, King of Denmark, completed the conquest of England, and also of part of Scotland. In 1443 Copenhagen was made the capital. In 1612 the Danish East India Co. was estab.

Regarding the Sea Laws and Maritime Ordin. we shall speak under a separate heading. DENMARK, MARINE INS. ORDIN. OF.

The pop. has undergone considerable variations in consequence of the many changes in territory. At the Census taken 1st Feb., 1870, the area was 14,553 square miles; the pop. 1,784,741; density, 111 to square mile. The increase in the pop. had been for the preceding 15 years larger in the towns than in the country districts. In Copenhagen it was 8'05 p.c.; in the other towns together 10'29 p.c.; and in the country districts only 5'99 p.c. The ann. mort. of Denmark is 22 p. 1000; and the mean lifetime is about 44 years.

The census enumerations, besides the distinctions according to sex, age, and domestic condition, make an exceedingly minute classification of the people according to "occupations," which is carried out even to the number of women and children dependent upon those engaged in each.

Out of each 1000 of the pop. the occupations were ascertained at the census of 1870 to be as follows: 395 employed in agriculture; 228 by manufactures and trades; 187 day labourers; 53 commercial men; 29 mariners; 20 paupers; 16 ministers and school-masters, or connected with education; 15 pensioners or people living upon the allowance made to those who cede their farms from old age, etc.; 13 servants; between 11 and 12 holding civil appointments; 9 commissioned and non-commissioned officers in the army and navy; and 9 are described as capitalists.—Martin's *Statesman's Year-book*.

In 1839 Prof. C. N. David, of Copenhagen, communicated to the *Statistical Journal* a paper: *A Notice on the last Census in Denmark*. [FEMALE LIFE.] [MARRIED LIFE.]

In 1848 Dr. Kayser, Prof. of Statistics at the University of Copenhagen, pub. *Det Kongelige Medicinske Selskabs Skrifter*—a work treating of fecundity, pop., etc., from which we have quoted under BIRTHS, etc. [FECUNDITY.]

In 1849 Dr. P. A. Schleisner, M.D., pub. his well-known work, *Vital Statistics of Iceland*. He shows that the same law of mort. prevails in Iceland as in Denmark, except that the mort. is much higher in the former, especially in the early years of life. The mort. of females, in comparison with that of males, is more favourable in Iceland than in Denmark. The prob. lifetime at birth is, in Denmark, for males, 47 years; for females, 50; in Iceland, for males, 37 years; for females, 48. "But this is not the true expression for the mort. of the Icelandic pop., inasmuch as epidemics have been put out of the calculation." [ICELAND.]

The prevailing characteristic of the climate of Denmark is humidity; it is remarkably temperate for so northern a region;—both the result of the lowness of the land and of its proximity to the sea on all sides. The winters are seldom severe, though instances of extreme rigour have occurred, as in 1659; but the cold is not generally very intense except in the north of Jutland, where it is greatest. On the other hand, the heats of summer are great, sometimes excessive. The mean temperature of the year is 47°; the mean from November to March ranges from 25° to 7°; and the extreme cold in January and February reaches 22° below zero. The mean temperature of June to the middle of August ranges from 59° to 73°, and the extreme heat reaches 89°. Thunderstorms are rare and of short duration; they occur generally in June and August. Violent winds are frequent, and rains and fogs prevalent.—*Imperial Gazetteer*.

We now propose to take a review of the various classes of ins. asso. which exist in Denmark.

Annuity Asso.—In 1739 an inst. was estab. under the patronage and guarantees of the king, which, irrespective of ages, promised pensions to widows at the rate of 40 rixdollars p.a. for life, from the commencement of widowhood, for every present payment of 110 rixdollars. The advantages offered being absurdly out of proportion to the subs. demanded, by the end of 1778 the whole fund had become exhausted, and the king found himself burthened with the support of 700 widows, and an obligation to support as many more as would be derived from 1500 marriages then remaining undissolved.

About 1780 another annuity inst. was estab., also under the patronage and guarantee-ship of the king. In this new inst. the annu. were made payable only during widowhood. It was not only guaranteed by the king, but it had the following add. financial security: All the military, naval, and other officers who received their pay from the king's treasury were obliged when appointed to agree to give up one month of their pay; and all subscribers were obliged on admission to contribute 10 p.c. more than the payments shown in the T. Dr. Price, who in several eds. of his *Observations* speaks of this inst., says:

The calculations for this estab., like those for the *Hamburg* and *Oldenburg* estab., have been made with such pains and ability from Mr. Sussmilch's T. of Mort., . . . by two of the first Danish mathematicians—Mr. Lous, Prof. of Mathematics and Navigation in the Academy of Sea Cadets; and Mr. Bugge, Prof. of Astronomy in the University of Copenhagen.,— . . . that there is not the least danger of its sharing the same fate with a former Danish estab. . . .

In 1842 there was founded the *Annu. and Life Ins. Co.*, of which we shall speak under LIFE INS.

Old Age Societies, etc.—In add. to the preceding annu. asso., which contemplate analogous objects, there are the following banks, etc., for making provisions in old age; providing sick allowance; and for payment of funeral expenses:

1760—*The Three-doubled Funeral Co.* of 11th August, 1760.

1765—*The United 2nd and 3rd Civil and Unanimous Funeral Co.*

1830—*Funds for the Relief of the Sick*—for servants.

1853—*The Universal Co. for the Sick and Old* (Copenhagen).

1853—*The Co. for Sick People, and Funerals of the Patriots.*

1872—*Bank for the United Maintenance of the Old of the United Commonalities.*

There are others the date of which we cannot determine, viz.:

Diana Funeral Co. in Copenhagen.

The Bank for Funeral Expenses for the Inhabitants of Workmen's Dwellings.

Mutual Establishment Funeral Co. in Copenhagen.

Schadtlers Fund for the Relief of the Poor in Copenhagen.

Fund for Sick People and Funeral Expenses of the different Trades and Occupations of the Railways and Great Manufactories of Denmark.

Life Ins.—A writer in the *Edinburgh Review*, in 1827, said: "Several small L. assu. inst. exist in Denmark, but they appear to do positively nothing, while an Ordin. exists prohibiting foreign sos. from trenching on their never-exercised rights." These appear to have passed away.

In add. to two F. Offices having life branches, there are the following:

1842—*The Life Ins. and Annu. So.* of 1842.—This Co. was reconstituted in 1871, and will be spoken of under that date.

1857—*The Savings Bank and Life Ins. Co. for Children and Old People.* This embraces a plan of deposit ins. and also of endowment ins., combined with savings bank operations. Small sums may be deposited. These may be made returnable on the death or emigration of the child, either with or without interest, according to the agreement orig. entered into. The endowment branch provides for the payment of a sum of money between the 18th and 25th years—the amount varying according as the principal sum may be repayable or otherwise. The contribution may be by yearly payments up to the age of 22. Children may be entered directly after birth, and from thence any time up to 10 years of age; and all children born in one year form a private co. or class, with tontine or survivorship advantages. For older lives tontine classes are formed, based on decennial periods. For provision in old age, payment may be made in one sum, or by periodical payments. At the end of 1871 there were 69,352 members.

1871—*Life Ins. Co. of 1871 in Copenhagen.*—This Co. is composed of the Life and Annu. Co. of 1842, and of an earlier Copenhagen Life Co. It is now managed by State officials, and all its obligations are guaranteed by the State. The object not being gain, the prem. are lower than with other cos.; and females are ins. at lower rates than males. In union with this co. is the *Universal Widows' Fund Ins. Co.* for Royal Danish Civil Officers. The new bus. of the Co. is on a very limited scale.

1872—*Danish Life Ins. Co. "Kafrina" in Copenhagen.*—Pol.-holders parti. in 40 p.c. of the profits. The Co. shows signs of great progress.

The life department of the *Denmark Reciprocal*, commenced in 1872, extends to annu. and endow. and funeral expenses.

1872—*Danish Workman's Bank*, "Saving and Loan Bank, and L. Ins. Co.," founded "with the view of collecting and giving interest for the small sums which the workmen can spare from their earnings to secure maintenance in old age," and to assist them in obtaining advances. In the savings' bank department very small deposits are received. Many English and Continental L. offices also transact bus. in Denmark.

Fire Ins.—In add. to the fire offices of 1778 [re-constituted in 1843] and 1792, mentioned under COPENHAGEN, there are several other flourishing offices, estab. at the dates following:

1731—*The Copenhagen Fire Ins. So.*, estab. by Royal Command, and re-constituted on several occasions [1733, 1769, 1795, and 1870]. This So. insures, on the contribution plan, buildings and manufacturing risks only. It transacts a considerable bus.

1792—*The Universal Fire Ins. for Buildings in Provincial Towns* was estab. by Royal

Command.—It is, we believe, the only co. now restrained to any particular description of risk. The Ministers of Justice have the supreme management, with the assistance of a body of 19 representatives, who are chosen partly from single provincial towns and partly from collective provincial towns in the different districts. The local management falls to the particular fire directors in the respective provincial towns; and they also manage the contributions, except in the several towns of Adensee, Aalborg, and Aarhus, where the contributions are made direct from the exchequers. The sum ins. on 1st April, 1872, was about 99 million rixdollars; and the property of the Co. at the same date consisted of about 535,193 Rd.

1798—*The Royal Chartered Universal Fire Ins. Co. for Goods*.—This is a proprietary Co., and has been managed with reasonable success. It transacts a considerable bus.

1838—*The Fünen Fire Ins. Co. for Goods and Chattels*.

1839—*Fire Ins. So. for Personal Goods and Chattels in Zealand*.—This asso., although domiciled in Copenhagen, confines its risks to household and agricultural or farming stock risks in Zealand. It transacted at one period a considerable re-insurance bus.; but this has been discontinued.

1841—*Fire Ins. Co. for Personal Goods in North Jutland*.—In this Co. the shareholders deposit half the cap. they subscribe; but the shareholders can retire and receive back the cap. so deposited.

1846—*Fire Ins. Co. in Praesto and the adjacent places for Personal Goods and Chattels of smaller Farmers*.

1850—*Fire Ins. Co. of the Towns in Fünen for Personal Goods*.

1861—*The Reciprocal F. and L. Assu. Co. of Denmark*.—This Co. undertakes household furniture risks throughout the entire kingdom of Denmark; chiefly risks of the larger class. The Co. commenced to transact life bus. in 1872.

1864—*New Danish Fire [and Life] Ins. Co.*—In 1872 it was resolved that the surplus of the Co. be accumulated until it amounts to *ten times* the cap. stock. The Co. has not hitherto been regarded as successful in its fire branch. It has a life branch, in which it met with more success.

The fire offices in Denmark are of two classes, "Reciprocal" and "Non-reciprocal." The former resemble in some respects our early mut. fire offices; and the members, *i.e.* the pol.-holders, are liable for contribution in respect of losses. The risks undertaken by the "reciprocal" offices are generally for terms of years. The "non-reciprocal" cos. resemble our proprietary offices, which make no returns of profits to pol.-holders. There are numerous provincial fire offices which we have not mentioned here; indeed every town, not to say village, in Denmark appears to have its local fire asso.

In the *Allgemeine Versicherung Zeitung* for 1847 it is stated regarding Denmark: The sum insured on *Town buildings* increased from £3,122,857 in 1827-8, to £4,457,142 in 1844—nearly 42·7 p.c. in about 17 years. The average losses during the same period amounted to about £1 16s. od. p. 1000, or 2s. 4d. p.c. The sum insured on *Country buildings* increased from £14,980,000 in 1827-8, to £18,923,571 in 1844—about 26·36 p.c. in the 17 years. The average losses thereon amounted to about £1875, or 3s. 9d. p.c.

Marine Ins.—The Royal Chartered Marine Ins. Co. of 1726, of which we have given some account under COPENHAGEN, and again speak of more at large under DENMARK, MARINE INS. ORDIN. OF, no longer retains the exclusive privilege of trans. Marine Ins. In 1786 an asso. of underwriters was formed, which in 1836 became constituted into an ins. co. called the *Private Ins. Co. of Copenhagen*. In 1852 was estab. the *Copenhagen Marine Ins. Co.*; and in 1863 the *Fourth Marine Ins. Co. of Copenhagen*. These transact the principal business of the country. There are a number of smaller marine asso. or clubs in the provinces.

A number of foreign marine ins. cos., and of land and river transport ins. cos., have branches and agencies in Denmark.

Cattle Ins.—There are numerous cos. or asso. for ins. cattle and horses. Indeed every town or principal village appears to have one or two of such asso.

Hail Ins.—There are several hail ins. cos.; but Denmark appears to be very rarely visited by hail-storms.

Companies for *Glass Ins.*, and *Accident Ins.* (apart from the sickness funds already enumerated) do not exist.

Mr. C. B. Lohrer, Agent of *Home Fire of N.Y.*, in Copenhagen, has forwarded us a complete list of the ins. asso. of Denmark, with copious observations thereon. From that communication we have drawn many of the preceding details. We hope we have committed but few errors of translation. Further use of the list of cos. will be made in our Appendix.

Mr. C. F. T. Young, in his *Fires, Fire Engines, and Fire Brigades*, 1866, gives the following account of the brigade appliances:

In Denmark the system of controlling and extinguishing fires differs in the cities and country towns, in the mode in which the organization required is carried out. It is the duty of all municipalities, country towns, and parishes, to have in constant readiness engines and appliances of sufficient power to enable them to cope with the flames. In the towns the citizens are required to serve in a local or municipal militia for a certain number of years, and a portion of this militia is formed into a fire brigade, the men chosen being principally masons and carpenters, whose trades best fit them for such employment. They are trained as thoroughly as possible under officers selected from among them by the municipal authorities. On these men alone devolves the duty of extinguishing fires, and in

extreme cases, where the danger becomes very imminent and the force insufficient to control the fire, the military come forward to assist, but it is not a part of the general duty of the soldiers to assist in controlling fires. Copenhagen being the only large city in Denmark, the organization of the fire brigade is consequently more extensive and complicated than in the smaller towns, and a few years since it was remodelled and arranged on the plan of the English fire brigades, and in some respects after the London system, and the brigade is found to work in a very satisfactory manner. There are no organized fire brigades in the country towns, but the duty of controlling and extinguishing fires rests with the parish authorities, and is often found to be rather inefficient, as is the case in this country. The inhabitants of each parish are bound to act as firemen, and extinguish their own fires, being directed and superintended by their municipal or other authorities, and assisted by the inhabitants of the adjoining parishes, all of them in the immediate neighbourhood being bound to send their engines. In the small towns the alarm of fire is given by the beating of drums, by fifes, and by the church bells, whilst in the country church bells only are employed. In Copenhagen the alarm is given by any one who discovers a fire running immediately to the nearest station and reporting the fact, whence it is signalled by telegraph to the other stations. This duty every one is bound to perform so soon as they discover a fire. In the night-time lanterns are used in Copenhagen, from the church towers, to indicate the locality of the fire, and from time to time a certain number of strokes on the church bells, in cases of great emergency, signal how matters are getting on. In the daytime flags are used.

Since this account was written some important changes have been made, and the German system has been very generally introduced.

DENMARK, MARINE INS. ORDINANCES OF.—The existing monuments of maritime legis. in Denmark are not so ancient as those of Norway. It is difficult (says Mr. Reddie) to believe that till the 12th century—the period at which the documents still in preservation commence—Denmark, “whose inhabitants have always been distinguished as active and bold navigators, should have been devoid of rules to guide individuals in their transactions and judges in their decisions. It is to be presumed rules were followed, similar to those found in the Norwegian Codes.” It will be remembered that Denmark formed a portion of that vast northern territory designated under the general appellation of Scandinavia; and hence perhaps the absence of a distinctive national code.

The earliest maritime law of Denmark is to be found in the municipal statutes of the different towns or provinces, and the subsequent usages which were adopted for the purpose of modifying them, and, more frequently, of supplying their defects. The most ancient of these municipal statutes is that of Sleswick, about the beginning of the 13th century, which contains only a small number of rules of maritime law; and this Stat. was adopted by Flensburg in 1284, with some slight changes. About the same time, also, Apenrade adopted the Statute of Sleswick. In 1240 a civil code was estab. for Jutland, but did not supersede any previous municipal rules of maritime law, of which there are few traces in this Code. In Holstein, the city of Kiel adopted in 1232 the law of Lubeck. A collection of decisions, under the title of Laws of the Province of Scania, appears to have been made in the 13th century; but merely contains some regulations on shipwrecks.

The *Hogheste Water-Recht*—a celebrated compilation instituted for the guidance of Hanseatic merchants—enjoyed great credit in Denmark. It was here the first ed. of it was pub. in 1505. The Danish translation of it in 1545 is the most ancient that is known; and the Danish Code of 1561 has almost literally adopted its regulations.

The Compilation of Wisby, as printed in Denmark in 1505, appears to have been found insufficient for the maritime commerce of Denmark at that date; for we have it on the authority of Reddie that 18 articles in Danish were added in 1508.

In 1561 the Code of Frederick II. was promulgated. This was modelled upon the Hanseatic statutes and jurisprudence, the Compilation of Wisby, and the Ordin. of the Low Countries, 1551; only a small number of its provisions being purely Danish legislation.

This Code of 1561 was followed by special laws on particular points, which had not been foreseen; such as the law of 1638, cited by Loccenius [*De Jure Maritimo*], prohibiting the sale of a vessel for a certain number of years after its construction.

These special enactments, and whatever else composed the law of Denmark, were united and embraced in the 4th book of the Code of Civil Laws, which Christian VI. caused to be compiled and promulgated in Denmark in 1683, and in Norway in 1687.

This was trans. into Latin in 1698; and again in 1710, by the authority of the Gov., under the title of *Leges Danicæ*, and is still in force. We possess a copy in English, “faithfully translated for the use of the English inhabitants of the Danish settlements in America,” and pub. in Lond. in 1756. The chap. treating of “Assu. of Ships and Cargoes” contains the following:

1. Whoever will assure his vessel or cargo shall do it in the proper method, and in writing, observing what the following articles prescribe, if the assu. is executed in the king's dominions.
2. Blank pol. stamp are sold by the proper officers; these are to be filled up by a broker, or where there is no broker, by the magistrate, with the name of the captain, to what place the ship is bound, where she is to load or unload, and what is to be assured.
3. The assurer shall underwrite such pol. with his own hand, and mention the prem. he is to have. If there are more assurers than one, each shall underwrite for the part he engages, and no one shall be bound to any more than what he underwrites for.
4. The broker shall enter into a register-book all the particulars of the assu., as who assured, to whom, what, etc.
5. No one's *Life*, pay, provisions, warlike stores of any kind, can be insured, only the vessel, and any certain parts of it, and all sorts of goods. And every one who assures his ship, or ship or cargo, shall reserve a tenth at his own risk unassured, according to the valuation of the assu. on the rest.
6. If any one will assure in different places he may, provided he does not assure above nine-tenths,

always reserving a tenth of each part assured, as above mentioned, otherwise the pol. to be void, and the prem. forfeited. All fraud whatever shall be avoided in assu., under penalty of infamy or death, according to the nature of the crime, and the guilty person shall moreover be obliged to make good all damages to the innocent party.

7. When an assu. is settled, the underwriter becomes obligated to perform all he has engaged for, and such obligation commences from the putting on board the things assured, and continues until they are again unshipped.

8. The prem. shall be paid down at underwriting immediately; but if the assu. is for the voyage out and return, half shall be paid down, and the other half on return, or at the time agreed upon; and on failure of payment at the term fixed, such debt shall bear 1 p.c. int. monthly until discharged.

9. If any accident happen to a vessel or cargo assured, it shall be immediately notified to the underwriter by the party assured, and proved by proper evidence; and if within three months the underwriter performs not his engagement, he shall pay 2 p.c. monthly int. until he does; but if he alleges any fraud committed, as an excuse for non-payment, the judges shall examine into the affair with the utmost diligence, and give a definitive sentence.

10. If after all possible inquiry, a vessel cannot be heard of (which was bound to any port in Europe) within a year and a day, it shall be deemed lost; if within two years nothing certain is heard of it (if bound to a port out of Europe), the same. After that time three months is allowed to the underwriter, and then he shall pay int. as above, and be liable to be sued for the payment.

11. If a person for certain reasons changes his course, or takes not in such goods as he assured, he shall immediately advise the underwriter thereof, and the pol. shall be void; but the underwriter shall for his trouble keep half p.c. of the prem. and immediately return the rest.

The following provisions regarding *Average* were overlooked in the preparation of our art. on that subject. They deserve mention:

11. All the goods, as well cast over as saved, shall be appraised according to the price the goods saved bring in the market, and on that footing the average of every one concerned is to be regulated, in regard to everything lost, so that the whole loss is to be divided between the whole ship, the goods saved, and the freight of the goods both saved and lost; nor shall the captain deliver to any one his goods until such average is paid, or security given for it: No ship-mortgage, or any of the private cargo allowed the sailors, shall contribute to an average.

12. In an average those goods are only to be made good, which being cast overboard, appear in the bill of lading to have been on board, unless the captain can bring evident proof that there were others.

13. Those goods which were damaged by being cast over, or washed over, shall be made good by average; but in all other cases, or where the goods were once put up again and properly stowed and safe, no damage afterwards happening can claim in an average.

14. If anything is found again on the shore, or in the sea, and returned to the owner, he can only claim average for the damage it has received.

15. The expenses for the cure of sailors hurt, or burying those dying in a wreck, come into an average. [BOTTOMRY.]

In 1746 the same king—Christian VI.—granted a Charter in favour of the Marine Ins. Co. of Copenhagen, which had been estab. in 1726, and of which we have already spoken. [COPENHAGEN.] This Charter contains many salutary regulations on the subject of marine ins. and averages; and its provisions for the time being appear to regulate the practice of marine ins. in Denmark. The Charter is dated 1st July, 1746, and contains the following preamble:

We, Christian the VI., by the grace of God King of Denmark, etc., etc., make known unto all men, Whereas the Deputies of the Ins. Co. estab. in this our residence City of Copenhagen, in behalf of the said Co., and in consequence of a conclusion made by the shareholders in the same, petitioned that we would be pleased to make some alteration in the grant given to the said Co. by our Royal Fathers the 20th April, 1726, and confirmed the 2nd March, 1736, we now at their desire, and for their better maintenance in future times, grant and confirm to the aforesaid Co. the following art. and privileges.

1. Whilst this Ins. Co. can and will duly support itself, no person whatever, without our dominion and territories, shall be permitted, under any pretence, to unite and form themselves into any kind of so. or co. for transacting ins., to the hindrance and prejudice of this Co., to which we have granted our Charter; yet is no body hereby prohibited, as before, to enter into ins. without the kingdom in any place or manner he shall think fit.

It appears from the preceding that the Co. had an entirely exclusive Charter in the first instance: which in this respect was modified by the present, or new, Charter; and this supposition is further confirmed by the Charters of the F. Ins. Co. to be presently noticed.

The following clauses give us an insight into the constitution and working of the Co. in several important matters:

2. We have granted that the proprietors of this Ins. Co. estab. by our Charter shall themselves draw up, and cause to be printed, the pol. of ins. which are to be delivered to the ins., in such legal and obligatory terms, as they shall think best for the safety and prosperity of the scheme: and upon delivering these printed pol. in our Revenue-Chamber, to the Commissioner of our Stamp Duties, they shall be allowed . . . to be stamped at 24 Danish shillings each; after which, being delivered to the keeper of our stamp paper, a pol. being wanted, it shall be delivered by him, to be immediately paid for; it is likewise our pleasure that the blanks in the printed pol. shall be filled up by the Co.'s book-keeper, or whom the Co. shall appoint, without keeping a broker or any other authorized person.

3. When a shareholder enters with his own hand in the security-book kept for the purpose what he gives the Co. for his security, and delivers it into their possession, such entry shall be held to be as valid, as if he had conveyed it to them by a formal instrument. And when a shareholder assigns for his security a thing which he does not deliver into the Co.'s possession, such assignment, though made on unstamped paper, shall, notwithstanding our Ordin. of the 10th March, 1732, in all cases, either in a suit at Law, or otherwise, be accounted of the same force as if done on stamped paper. But no fictitious or *pro forma* papers are comprehended herein, these being entirely abrogated by our Ordin. of the 10th Nov. 1731. In like manner we will that anything relating to Ins., which is agreed on between the parties, and entered in the Co.'s regis., shall be equally binding, as if every one of the concerned had subscribed to it.

4. As the proprietors of this Ins. Co. bind themselves to be answerable for all the Ins. transacted by the Co., and the principal accomplishment of this beneficial scheme depends on an inviolable regard and maintenance of the general security, both in regard to the insured, and of the joint managers of the Co., we have of our Royal Goodness, for the better support and protection of this well-intentioned

scheme, resolved to forbid, and do hereby absolutely and strictly forbid, that any one, for any debt or pretence whatsoever, deliver any arrest, prohibition, attachment, or other obligation, upon any security which the Co.'s proprietors have given amongst themselves, or on moneys which may be in the Co.'s chest on account of one of the proprietors; it being our pleasure that such securities, which are now and shall be delivered to the Co., be free from all seizure, as likewise all sums lying in the chest are and shall be looked upon in all cases as a common possession, and be applied to no other than its proper appointed use; and that all parties concerned may be the better certified of this our will and intention, we hereby make known, for ourselves, and our Royal Heirs in the Monarchy, that in case any of the shareholders of this Ins. Co. estab. by our Charter is or shall be indebted to us, of what nature soever the debt be, yet we will not avail ourselves of any privilege of superiority over the Ins. Co., either relating to the security which such managers have given to the Co. or to any moneys in the Co.'s chest on their account; but content ourselves with requiring that when our claims on any shareholder are made known to the Committee of the Co., such shareholder shall not thenceforth be answerable for Ins. to be done; nor shall anything be paid to him: but the security which he delivered to the Co., and any share in the profits that may be due to him, shall remain in the hands of the Co. till all the Ins. which were underwritten previous to the debt owing to us be duly accomplished and satisfied by the Co.; and what remains thereafter of his pledge or security, and of money in cash for him, shall be delivered by the Co. to the persons nominated by us towards satisfying our claims. *It is further our pleasure that the Directors of the Ins. Co. deliver into our Revenue-Chamber a just certificate under their hands of the sums subs. for by each sharer, that on occasion they may serve as directions whereby our Revenue-Chamber may take the proper measures for our security.*

Then, in view of disputes "which after signing the pol. may through unfortunate accidents happen concerning Ins., Average, and Return," it is provided that where a dispute cannot be amicably adjusted, "in which the Co. is to spare no pains," it should be brought "before our Ins. Court," which was to consist of 5 persons, viz. 2 of the magistracy, or the police or commerce chamber; 2 sea-captains; and 1 of the city council. "The Registers to be kept and the Act to be drawn up by the Sec. of the Police and Commerce Chambers." It was further provided:

6. If, in the process [of investigating disputes], it shall clearly appear, that any person after taking out an ins. from the Co. has acted fraudulently, either in insuring more than was actually shipped, or by himself, or in concert with the master, wilfully making away with the ship and goods; insuring anything which he can be proved to have previously known to have been lost, or to have received advice that the ship was in danger, or by any other mal-practices and barratries, he shall not only lose his prem. and forfeit all claim on the Ins. Co., but shall pay to the said Co. all the charges incurred by the process, the examining the matter, and the procuring of evidences, according to an account signed by the Co.'s managers, and which shall be admitted without further proof; and further shall be, for the frauds committed by him, tried by our Fiscal-General, and punished in body, character, or effects, according to the nature of his crime: which trial we shall order to be carried out without any charge or trouble to the Ins. Co.

7. In case of any dispute among the proprietors of the Co. relating only to ins., and the just management thereof, no process shall be allowed upon it; but when such dispute cannot be amicably determined by the Co.'s managers, a gen. meeting of all the sharers shall be held, and the matter determined by a majority of votes; and such determination shall stand good without any further plea or opposition.

8. Lastly, having taken the beneficial scheme into our Royal protection and favour, we shall, according to times and circumstances, bestow further consideration on it, and improve this our Grant with what other articles shall appear proper; on the contrary, we strictly forbid, as before, all and every one to molest or in any wise injure the said Co., under pain of our displeasure. Given at our Castle of Rosenberg, on the 1st day of July, 1746, under our Royal hand and seal.

The constitution of the Co., as settled at the date of this renewed Charter, contained the following passages:

II. But if, through the great number and amount of insurances, the above-mentioned cap. should not be thought sufficient to run the hazard, the three managers for transacting the pol. for the current year may convene all the managers and deputies to deliberate on the emergency, and afterwards lay it before a general meeting of the proprietors, to determine whether the sum to be hazarded shall be enlarged beyond what was at first agreed on, or whether the Co.'s cap. shall be increased by subs. Yet none shall be obliged against his will, neither by a joint resolution nor a majority, to augment the sum which he first voluntarily subs. as a proprietor; but the additions to the bonds of the sharers in the first cap. shall, as likewise the new subs., entirely depend on every one's own free choice and consent.

V. The Co., being instituted for the public good, by the free desire and consent of the proprietors may by them be superseded and terminated, either by ceasing at any time to underwrite insurances, or by totally separating from each other; as the proprietors by the alterations of times, or from other causes or incidents, may judge proper and convenient. Yet shall this ceasing and separating be determined by a majority of votes, and no proprietor for himself in particular shall withdraw from the Co. within to successive years from the 1st Jan. of this present year 1746; but at the expiration of the 10 years every one who is not willing to go on in what new proposals may be agreed to, must declare 8 weeks before the close of the year, and the balancing of the accounts, that he will not enter into further risks: whereupon after the close of the year, and when all the risks in which he has been comprehended, and for which he partook of the prem., are run off, he is to be entirely free of the Co., and receive back what pledge he delivered as his security.

XXXIII. In regard to the different rates of ins. according to the difference of the four seasons of the year and of the seas, the Committee for signing the pol. are to govern themselves as far as possible by the Ordin. made for Ins. prem., until alterations of time and conjunctures shall occasion a new Ordin. to be made; however, they are permitted in adjusting the prem. to the alteration of the seasons and voyages, if they find it for the Co.'s advantage, to state them according to the current price of foreign cities.

Forms of pol. are provided for merchandize and for ships. We give the former—the use of these forms was compulsory:

The joint-proprietors of the Co. insure to you . . . either in part or the whole, to friend or enemy, the sum of . . . on goods, wares, and merchandizes of any kind whatever, perishable or not perishable, without exception, which are already laden, or shall be laden in the ship, which God preserve, called . . . of which . . . is captain or master, or whoever shall go as captain or master in his room; which goods, consisting of . . . or whatever the nature of them may be, are with our consent and approbation valued and set down at the sum of . . . the ins. prem. included; truly and faithfully consenting and insuring on the account of the above-mentioned Ins. Co. to pay the

aforsaid insured sum without any delay, objection, or plea of our privilege, only upon his producing this pol.; and this within two months after due proof shall be made to us upon oath of the reality (which God forbid) of the damage and loss, for which 98 p.c. shall be paid—a deduction being made of 2 p.c. But in case the goods be stranded and any part thereof be saved, what is thus saved shall be for the benefit of the said Ins. Co., and be deducted from the sum to be paid to the insured. Therefore we here take upon the charge and account of the Co. all dangers and unfortunate accidents which may befall the said ship, . . . and run all hazards of it, from the day and hour when the said merchandizes shall be brought by you or your agent to the said landing-place or sea-coast, to be put on board the ship, or are carried from thence in boats, wherries, barges, prahms, barks, or lighters, to the said ship and put on board, till the ship arrives at the above-mentioned place, and the said goods and merchandizes are there safely delivered, and without any loss or damage brought to you the insured or your agents; yet shall the risk last no longer than 15 days after the ship shall be arrived at the appointed place. The afore-mentioned ship may also sail backwards and forwards, to the right and left, and tack and turn on every side, and in case of necessity, or voluntarily, put into such roads and harbours as the captain or master shall find necessary and convenient for prosecuting his voyage; and in case the aforsaid goods be necessarily removed from the ship, and instead of it reladen on board another ship either smaller or larger (which the ins. may of themselves do without our consent or permission), the Co. shall run the same risk and hazard as if the same goods had never been unladen; and the said hazard is to include all dangers of the sea, storm, and bad weather, fire, and arrests by friends or enemies, detention by kings and queens, princes, lords, and republics, letters of mark and counter-mark, barratry and negligence of the master and ship's company, and all other perils and accidents, apprehended or not apprehended, usual or unusual, none excepted, which in any wise may befall the said ship without the blame and connivance of the insured; we in all such cases placing ourselves and the proprietors in your stead to insure you for all losses and damages, and to pay to you, or your agents or assigns, all damages which you shall have suffered in the manner above mentioned, and this within two months after the misfortune or damage shall be duly proved to us. We likewise give you and all others power in such cases to be assisting in saving the aforementioned goods, according to the Laws and Ordin. of the Co.; in case of necessity likewise to sell them, and without waiting for our previous consent or permission distribute the produce: further, we will pay all the charges incurred thereby, together with losses sustained, whether anything remains of what was saved or not: the account of the charges to be allowed upon the oath of the person who drew it up; under all stipulation that for the said ins. there shall be paid to the Co. . . . p.c. free of average and charges arising from demurrage; likewise from losses and damages under 3 p.c., and on wool, hemp, flax, stock-fish, and sugar under 10 p.c. And these premises the Co. and their proprietors jointly bind themselves truly and faithfully to perform according to the regulations set forth in the Ins. Co.'s Ordin.; to this end foregoing all objections and evasions contrary hereto, especially all indulgences, privileges, letters of respite and protections, or anything else whereby such payment might be retarded. . . . Given at *Copenhagen* the . . . In witness whereof the Directors have, in behalf of the proprietors, hereunto set their names and the Co.'s seal.

Then we have "articles and compacts which in insurances are to be especially observed betwixt the Ins. Co. and the insured," from which we draw one or two passages only:

1. He who is for insuring ship or goods, either the whole ship, or the whole cargo, or any part of the ship, or any part of the cargo, or any parcel of goods, small or large, on any ship, is obliged truly and plainly to declare and make known what advice has been received of the ship, whether good or bad, directly or indirectly, by letter or verbal information, and lastly where the ship lies, and where the goods are to be shipped, whether the ship be ready for sailing, or whether the ship with the goods are already sailed; the name of the ship and master, whether it be a ship, frigate, pink, galliot, ketch, smack, hooker, bark, or yacht, of whatever kind it be, and in what package and vessels the goods are; but also *grosso modo* for information at the salvage; from and to what place the ins. is actually to be made, whether it be also desired to put into any place or harbour by the way, and in case it be necessary to inquire how the ship is provided and manned, and whether it is to sail with or without convoy. Likewise, one insuring a ship's hull, or part of it, shall be obliged to declare and make known whether it be fir, or an oak ship; a larger prem. being to be paid for one of fir than one of oak; so that if on the loss of an insured ship it shall be found to have been of fir, and this had not been declared by the insured when the ins. was desired, he shall be entitled to only half the sum ins.; but if at desiring the ins. notice was given that the ship was of fir, then in case of its being lost, the whole sum insured is to be paid.

2. Any person desiring to ins. such a ship, or part of a ship, may put in the pol. a just valuation or taxation of the whole ship, or part of the ship, according to its real value, together with its cables and cordage, anchors, boats, sails, and other ship's furniture; among which, however, are not to be included the expense of powder, balls, provisions, wages, etc., as these are not to be insured. In like manner they may put a certain valuation or taxation for the whole lading, or, as is before mentioned, a part thereof, or any parcel of goods, great or small, which is insured, according to the market price, or according to the purchase, together with all charges till shipped, as also duty, fees, package, and others, either with or without the ins. prem. Thus the value of any such ship, or part of a ship, together with the charges of lading the goods and other expenditures, the prem. likewise included, may be insured.

3. No ins. are to be allowed on uncertain and precarious things, or imaginary and such kind of profit, or on the men's lives, except for ransoming from *Turks* and *pirates*. Only on returns from the *East Indies*, double the value of what was sent to purchase them, or the amount of the said returns may be insured. But on other returns out of Europe 50 p.c. more than is purchased, or is sent out for the purchase. Of all returns from *Iceland*, each kind in particular (as hath hitherto been usual) shall be valued in the pol.; and if it afterwards appears by the bills of lading, and is certified upon oath, that the goods shipped do not amount to the sum insured, the deficiency shall be returned; and in averages and damages no more shall be paid than what by the bills of lading appears actually to have been in the ship; and the insurers shall contribute for no more than the sums insured. But from and to all other places in *Europe*, no more shall be insured than was actually purchased, together with the charges and ins. prem. . . .

Then there is a statement of the "articles to be observed and complied with in average accounts betwixt the Co. and the insured," wherein we are told, "to *great average* belong" (*inter alia*)—

7. The charges of the illness and funerals of the men who have been hurt in this hasty clearing of the ship, or have been wounded or maimed in action against *Turks*, pirates, and other enemies by whom they have been attacked.

8. Ransom for ship and goods paid to *Turks*, pirates, and others.

9. The average is to be paid as often as it happens—either once or oftener—although the ship afterwards should be lost in the same voyage.

The constitution of the Co. has been revised and renewed several times during the present century—notably in 1836 and 1846. Indeed, it appears to be renewed every 10 years, much after the orig. design. This, as we have already stated in our art. DENMARK, is no longer the exclusive co. for marine ins.

In 1803 the Danish Gov. promulgated an Ordin. for regulating the conduct and fixing the obligations of its subjects, both merchants and seafaring people, during the time of war, among other maritime powers.

During the same year another Ordin. was pub. concerning the salvage of vessels and goods shipwrecked on the coasts of Holstein and the other Danish provinces.

DENNYS, HADDOCK, was Sec. of *English and Scottish Marine*, 1867.

DENSITY (from *densus*, thick).—The state of being dense; the property in bodies by which they contain a certain quantity of matter under a certain bulk or magnitude; closeness of constituent parts; compactness. Hence density of pop.: compactness of the people dwelling on a given area.

DENSITY OF POPULATION.—The mode usually employed for testing and comparing the density of pop. is that of computing the number of inhabitants to each square mile of territory. It is almost the only test available; but its value for the purposes of exact comparison requires to be scrutinized. Two countries, or two districts of any one country, may contain the same superficial area and the same pop.: but in the one case the people may be aggregated into large towns, with hardly any in the country villages; in the other case there may be numerous populous villages, and scarcely any large towns. The circumstances of the two peoples would vary very considerably: although the average density would *appear* to be the same. Other points requiring special consideration will arise as we proceed.

Attention was first drawn to the subject of density by reason of the largely increased rate of mort. among town pop. Dr. Price was loud in his outcry concerning the evil influences of towns on the mort. of the human race. Some of his arguments will be reproduced in our art. TOWN LIFE. In later times the subject has been investigated in a more scientific manner.

Dr. Granville informed the Select Parl. Committee on Friendly Sos. in 1827 that the mort. of families of the industrial classes decreased in proportion as their lodgings ascended; *and also in a direct ratio to the number of people crowded in one room.*

Dr. Farr, in his letter to the Reg.-Gen. which appeared in the 2nd Ann. Rep., pub. 1840, enters fully upon this question of density:

Wide streets, squares, and parks, with spacious houses, would render ventilation easy, and secure the dilution of poisonous emanations; but the ground is valuable, and building is dear in cities: hence there has been a constant and an unopposed tendency in landlords to accumulate the greatest number of houses on the least possible space in poor districts, and the families of artisans are driven to crowd in small, low, close rooms. The evils from this source are one of the contingencies of poverty and ignorance; they may, however, be met by opening, in the densest neighbourhoods, a certain number of wide streets, through which the collateral streets would be ventilated by fresh atmospheric currents. As information spreads among tenants, landlords will naturally render the districts in which their property lies healthy. Men will pay higher rents rather than expose themselves and their families to the risks of sickness and death. The landlords of the metropolis, at whose expense the improvements must be made, are deeply interested in its sanitary state; for every amelioration conducive to the health of the inhabitants raises the value of houses, while the deterioration of the atmosphere must inevitably drive the wealthy out of town, and lead to the erection of residences in the country. . .

He affirms that the diseases “vary in character in the healthy and unhealthy districts of the metro. as they vary in the country and in towns”; and in proof he submits the following T., showing the mean mort. in three groups of the metro. regis. districts:

Districts.	Square yards to 1 person.	Ann. rate of mort. p. 100.	Ann. Rate of Mort. p.c. by Diseases of					
			The Epidemic Class.	Typhus.	The Nervous System.	The Respiratory System.	The Digestive Organs.	Other Classes.
East London	35	3'428	'994	'349	'518	'914	'171	'831
East and West	119	2'786	'679	'181	'440	'771	'180	'716
North and West	180	2'289	'539	'131	'374	'659	'134	'584

The point of the T. turns almost exclusively upon the density, *i.e.* the number of square yards of surface to each person as shown in col. 2. We have already referred to this T. in our art. CONSUMPTION.

In the 5th Rep. of Reg.-Gen., pub. 1843, Dr. Farr returns to the subject, remarking that the mass of facts had been obtained in the few preceding years “which furnish the means of determining the influence of the density of the pop. on the causes of death.” Taking a series of country districts, and another series of town districts,—all of which he enumerates,—the ann. mort. to 1,000,000 living was found to be during the 4 years 1838–41—in the country districts 19,300; in the town districts 27,073; the pop. to the square mile being in the former 199, in the latter 5108. One in 52 died in the country; 1 in 37 in the town districts. “The mort. in the dense districts was to that in the less dense districts as 140 to 100.”

In our art. CHOLERA, ASIATIC, under date 1852, we have referred to the subject of Density in relation to that epidemic.

The following T., prepared by the Reg.-Gen. for a different purpose, and included in his 16th Rep. (pub. 1856), proves in a very marked manner that during the 10 years embraced therein, just as the density of the pop. increased, so the rate of mort. increased : to which rule there is but one single exception in this important T. :

Number of Districts.	Acres.	Mean Pop. 1841-1851.	Density and Proximity of Pop.			Mort.
			Acres to a Person.	Persons to a Square Mile.	Proximity or nearness of Person to Person. Yards.	Ann. Deaths to 1000 living.
3	339,545	29,794	11'40	56	252	15
14	993,704	164,354	6'05	106	184	16
47	3,464,066	778,922	4'45	144	158	17
87	6,384,531	1,486,757	4'29	149	155	18
96	6,647,343	1,887,182	3'52	182	140	19
111	7,391,920	2,336,246	3'16	202	133	20
90	6,094,898	2,094,155	2'91	220	128	21
48	2,555,483	1,293,608	1'98	324	105	22
26	1,233,079	935,147	1'32	485	86	23
29	666,135	1,265,905	'53	1216	54	24
24	767,863	1,513,849	'51	1262	53	25
18	320,887	1,034,678	'31	2064	42	26
13	275,899	769,263	'36	1784	45	27
18	189,562	1,313,309	'14	4434	28	28
					} up to 36	
624	37,324,915	16,903,169	2'21	290	111	22

[Note.—In this T. the districts of Eng. are thrown into groups according to their respective rates of mort. Thus, there were 3 districts in which the ann. mort. was 15 in 1000 living, and 111 districts in which the mort. was 20 in 1000; this latter group comprises an area of 7,391,920 acres, and a pop. of 2,336,246, being 3'16 acres to each person, or 202 persons to each square mile; if the pop. was spread equally over this area, their *proximity* to each other would be 133 yards. The ann. excess of mort. over 17 in 1000 living is 3, representing an excess of 70,087 deaths in the 10 years 1841-50 among the pop. living in this group of 111 districts.]

The results are shown in a less marked, but hardly in a less instructive manner, if we take the registration divisions :

The present Earl Derby [then Lord Stanley], in his address before the Social Science Congress, 1857, gave, in a very succinct form, an illustration of the influence of density upon disease. He said :

A vast and interesting inquiry is opened by the statement that, other causes being the same, the mort. of a district varies directly as the density of its pop. I cannot refrain from a passing reference to those facts. It was obs. during a late epidemic, that in the 134 more thickly inhabited districts, where the higher rate of cholera mort. occurred, the pop. was 915 to the sq. mile. . . . In 404 districts of lower cholera mort. there were 235 inhabitants to the square mile, . . . while in the remaining 85 districts, with an average pop. of 122 to the square mile, no deaths whatever from cholera took place.

Divisions and Regis. Counties.	Density of Pop.		Ann.Mort.
	Acres to a Person.	Hectares to a Person.	Deaths to 1000 living.
London	'04	'01	25
South-eastern Counties	2'62	1'06	20
South-midland Counties	2'69	1'09	21
Eastern Counties	2'98	1'21	20
South-western Counties	2'82	1'14	20
West-midland Counties	1'91	'77	22
North-midland Counties	3'04	1'23	21
North-western Counties	'88	'36	27
Yorkshire	2'17	'88	23
Northern Counties	3'89	1'57	22
Monmouthshire & Wales	4'63	1'87	20
England and Wales.....	2'21	'89	22

In 1858 Mr. F. G. P. Neison read before the Brit. Asso. Meeting at Leeds a paper : *On Phthisis in the Army*. Its main results, so far as they bear upon the influence of Density, have already been given in our art. CONSUMPTION.

In 1859 Mr. James T. Hammick, of the Regis.-Gen. Office, read before the Social Science Congress Meeting at Bradford a paper : *On the Relation between Density of Pop. and Mort. from Consumption*. The substance of this most valuable paper we have also given under CONSUMPTION.

Mr. Wm. Royston well remarks in his pamphl., *Variation of the Death-rate in England, 1860* :

Over-crowding I consider the evidence of the existence of certain other causes which are equally injurious : for we find that it is the lowest section of society which thus herds together ; it is this class who are the most filthy in their habits, and amongst whom poverty and disease always abound. It is therefore not surprising that such a combination of unfavourable circumstances should produce an excessive mort.

The Census Commissioners of 1861 offer the following obs. regarding "Density and Proximity" :

Placing a person on each square yard, 3,097,600 persons might stand upon a square mile, and if the whole pop. of England were mustered, they might stand upon an area a mile deep and $6\frac{1}{2}$ miles (6'478) long. It has been shown that the people are unequally distributed over the kingdom ; but if we assume them by hypothesis to be equally distributed over the 58,321 miles of territory, there will be 344 persons to each square mile. And it is usual in this case to say that the density of the pop. is such that there are 344 persons to a square mile, or 1 person to 1'86 acres. The mean proximity is 102 yards upon the same hypothesis, and that is the mean proximity of person to person. For the sake of comparison with other countries, and in conformity with the recommendations of the Statistical Congress, we state these facts in the metrical measures. Thus the specific pop. is 133 to a square kilometer ; 1'33 persons to a hectare ; and the mean proximity is 93 meters.

It is quite certain that in the great majority of cases density of pop. is the surest guide to the greatest mort. The Reg.-Gen. states that the rule that the rate of mort. increases with the density of the pop. holds good in 13 out of the 14 divisions into which he has divided his. regis. districts. There are, however, two modes by which the amount of crowding may be estimated : one, by calculating the number of persons to the acre ; the other, by noting the number of inhabitants to each house. Upon these Messrs. Ransome and Royston, in their *Remarks on some of the Numerical Tests of the Health of Towns, 1863*, remark :

Now it is the excessive crowding of people in the same house from which we should expect injurious effects ; and it is only by the second method that we can obtain an accurate idea of the extent to which this prevails. It is quite possible that a large number of persons might live in health, and without over-crowding, upon a comparatively small area ; or again, owing to the encroachments of other buildings, the inhabitants may be sparsely scattered over a large space, and yet the few dwelling houses remaining may be greatly over-crowded. The following T. clearly shows that in the district of Manchester, therein displayed, the rate of mort. does not vary as the average density, but as the number of inhabitants per house :

Table showing the acreage density of the pop., the number of inhabitants per house, and the death-rate p. 10,000 of the pop., in the following districts of Manchester.

Districts.	Pop. in 1861.	Estimated acreage density.	Average number of inhabitants p. house.	Death-rate p. 10,000 of pop.
St. George's } Ancoats }	...	104,038	5'6	280
London Road } Deansgate }	...	81,372	6'0	294
Market Street }				

They proceed to point out, what many others who have considered the subject must have observed, viz. that it is not so much from over-crowding itself, as from the circumstances which accompany or occasion it, that so many evils result :

The people who thus flock together most closely are the poorest and most degraded of the pop. They are driven by penury or by choice to the lowest parts of the town : generally to those parts which have been abandoned by all others from their proximity to the river, or to the various nuisances of a large town. They are thus left without the leaven of example to improve their condition, and become fit food for disease and vice. . . . Amongst them we find intemperance, immorality, improvidence, neglect of body, utter carelessness and ignorance of the laws of health,—it is not surprising that amongst them death claims so large a proportion of victims.

Dr. Stark says in 5th Rep. of Scottish Reg.-Gen., pub 1863 [Returns for 1859] :

Density of pop. always favours the spread of epidemic diseases ; and this may account for the fact, that in years when epidemics prevail, the mort. thereof is higher in England than in Scotland. In Scotland itself this element is conspicuously seen in the very different mort. caused by these diseases in the town and in the rural districts. Thus in the insular districts, where the pop. is excessively scattered, only 296 deaths from the zymotic class of diseases occurred in every 100,000 inhabitants ; in the mainland-rural districts, where the pop. is much more dense, and is here and there collected into villages and small towns, the deaths from the zymotic class amounted to 418 in every 100,000 persons ; whereas in the town districts, where the inhabitants are crowded together, the zymotic class of diseases proved fatal to 689 persons in every 100,000 inhabitants. The crowding, however, is merely one, but a very important, element in the unhealthiness of the towns.

Dr. E. Headlam Greenhow, M.D., in his well-known *Papers relating to the Sanitary State of the People*, puts the case as follows :

In Glendale and Rothbury, both districts in Northumberland, the inhabitants are about—in the first 1 to 10 acres ; and in the second 1 to 21½ acres. At the last census [? 1861] the deaths were—in the first district 15 and one-ninth p. 1000 ; and in the second 14 and one-fiftieth p. 1000 ; while in Liverpool the inhabitants are about 108 p. acre, and the deaths 36 p. 1000. This consideration of space for the people

to live upon is indeed most important, and well worthy of much investigation. Supposing a 1000 persons lived on an acre of land, having every other modern advantage for health, possessed of good drainage and ample water, and the same number of persons lived on a 1000 acres without any sanitary arrangements, the deaths p. 1000 would be much greater in the former than the latter.

We cannot help feeling that the latter part of this proposition is overstated.

Dr. Farr, in the Supplement to the 25th Report of Reg.-Gen., treats in a much more complete manner than he had previously treated of the "relation between density and death-rate":

It is well estab. that the mort. of the pop. of cities is generally higher than the mort. of people in the country. And it has been shown in the Ann. Rep. that there is a constant relation between the density of the pop. and the mort. This has been further tested by arranging all the districts in the order of their mort. during the 10 years, and then determining the density of their pop.

Here is the T. in which these results are shown :

Table showing the Area, Mean Pop., Density and Proximity of Pop., of the Districts of England grouped in the order of their Mort. 1851-60.

Number of Districts.	Acres.	Mean Pop. 1851-60.	Density and Proximity of Population, 1851-60.				Mort. Ann. Deaths to 1000 living, 1851-60.
			Hectares to a Person.	Persons to a Square Kilometer.	Persons to a Square Mile.	Proximity or nearness of Person to Person in Meters.	
1	235,861	6,817	14'001	7	18	402	14
2	301,473	21,069	5'790	17	45	259	15
12	627,588	129,055	1'968	51	132	151	16
26	1,507,484	421,140	1'449	69	179	129	17
81	5,258,236	1,300,629	1'636	61	158	137	18
121	9,540,681	2,668,756	1'447	69	179	129	19
129	8,444,479	2,649,736	1'290	78	201	122	20
84	5,599,983	2,110,379	1'074	93	241	111	21
51	2,636,106	1,878,056	'568	176	456	81	22
40	1,514,137	1,845,790	'332	301	780	62	23
26	590,955	1,762,962	'136	737	1909	40	24
20	442,540	880,953	'203	492	1274	48	25
14	217,029	1,065,319	'082	1213	3142	31	26
13	212,694	1,085,675	'079	1261	3267	30	27
11	195,637	1,170,740	'068	1479	3830	28	28
							up to 33
631	37,324,883	18,997,076	'795	126	326	96	22

[Note.—In this T. the districts of Eng. are thrown into groups according to their respective rates of mort. Thus, there was one district in which the average ann. rate of mort. in the 10 years 1851-60 was 14 in 1000 living, and 129 districts in which the mort. was 20 in 1000. This latter group comprises an area of 8,444,479 acres and a pop. of 2,649,736, being 1'290 hectares to a person, 78 persons to a square kilometer, or 201 persons to a square mile; if the pop. was spread equally over this area, their proximity to each other would be 122 meters.]

Dr. Farr continues :

The general mort. of the 631 districts ranged from a rate of 14 to 33 deaths in 1000 living. If the facts are arranged in five great groups, the following result is obtained. 1. Where the mort. was 14, 15, or 16, the pop. was in the proportion of 86 persons to 1 square mile. 2. Where the mort. was 17, 18, or 19, the pop. was 172 persons to a square mile. 3. Where the mort. was 20, 21, or 22, the pop. was of the density expressed by 255 to a square mile. 4. Where the mort. was at the rate of 23, 24, or 25, the pop. was of the density expressed by 1128 to a square mile. 5. And where the rate of mort. was 26 and upwards, the average density was expressed by 3399 persons to a square mile. *Thus in these five groups there is a constant increase of mort. running parallel with the increase of density.*

Not only is that the case in great groups, but the same law reigns over the two series of ratios—the ratio of deaths to the living, and the ratio of the living to the area of land on which they dwell—when the groups are multiplied and the facts are subdivided so as to give rise to some disturbance; which almost invariably admits of explanation. For it happens when there is a discrepancy that the population is lodged on a small portion of the area of a wide district, and in that case the density of the part in which the people dwell is not accurately expressed by the method here employed. When the groups are larger, the effects of these perturbations are less visible, as the disturbing causes neutralize each other to some extent.

The pop. of the denser districts differs in many respects from that of the thinly peopled districts of the country; but there can be no doubt that mere proximity of the dwellings of the people does not necessarily involve a high rate of mort. When any zymotic matter, such as varioline, scarlatine, or typhine, finds its way into a village or street, it is more likely to pass from house to house than it is where the people are brought less frequently into contact. The exhalations into the air are thicker. But if an adequate water supply, and sufficient arrangements for drainage and cleansing are secured, as they can be by combination in towns, the evils which now make dense districts so fatal may be mitigated. Indeed some of the dense districts of cities are in the present day comparatively salubrious.

The following T. shows the density of pop. and ann. mort. in the 2 decennials 1841-50 and 1851-60 in the registration divisions, counties, and districts of England.

DIVISIONS AND REGISTRATION COUNTIES.	DENSITY OF POPULATION. Acres to a Person.		ANNUAL MORTALITY. Deaths to 1000 Living.		
	1841-50.	1851-60.	1841-50.	1851-60.	Mean of 20 Years 1841-60.
London	'04	'03	25	24	24
South-eastern Counties	2'62	2'34	20	20	20
South-midland Counties	2'69	2'53	21	20	20
Eastern Counties	2'98	2'85	20	21	21
South-western Counties	2'82	2'74	20	20	20
West-midland Counties	1'91	1'69	22	22	22
North-midland Counties	3'04	2'83	21	21	21
North-western Counties	'88	'74	27	26	26
Yorkshire	2'17	1'92	23	23	23
Northern Counties	3'89	3'29	22	22	22
Monmouthshire and Wales.....	4'63	4'18	20	21	21
England	2'21	1'96	22	22	22

Mr. Samuel Brown, in a paper read before the Statistical So. in 1868, *On the Comparative Pop. of European States*, says :

As to density of pop., the differences are very great indeed. Norway, for instance, for every 1000 inhabitants, has an extent of 21,363 hectares ; Belgium only 650 hectares ; the former being 33 times as great as the latter. In the U.S. the difference is greater still, the number of hectares being 23,200 to every 1000 inhabitants, and the pop. includes in the estimate nearly 4 millions of slaves. . . .

Dr. Farr says, in his special report on the cholera epidemic of 1866 [pub. 1868] :

It may be stated generally that the cholera is most fatal in densely peopled districts ; and where it finds its way into a school, a prison, a workhouse, or a barrack, under bad sanitary conditions, it is generally fatal in proportion as the inmates are crowded.

Dr. H. W. Rumsey, in his pamph. *On certain Fallacies in Local Rates of Mort.*, etc., 1871, reviewing the question of deaths in public inst., says :

The general results of the discussions to which I have referred appear to be—(1) that the deaths in hospitals and other large inst.—especially the mort. following operations [LIMB AMPUTATIONS] (and universally that after childbirth)—are vastly increased by the mere aggregation of patients, and *cæteris paribus*, in proportion to the density of that aggregation, apart from all other circumstances which might affect success or endanger life ; (2) that the death-rate, calculated as it should be, on the number of patients, and not on the number of beds, increases with the size of the estab. and the number of its inmates ; and (3) that wherever this assemblage of the sick and hurt occurs in the centre of a crowded pop., the ratio of mort. attains its maximum.

The inquiries and reports of the last half century leave no doubt that in proportion to the condensation of human and animal life, so does the liability to disease and death augment ; and there is no reason whatever why a natural law, which regulates the average sickness and mort. of our districts, should be inoperative in hospitals and public estab. As before said, no amount of cleanliness can wholly prevent real danger of aggregation. Sanitary regulations may diminish and control the evil. But that special atmospheric deterioration which attends on density of pop. is too irremediable a condition to be cured by mere ventilation ; for this, whether natural or artificial, is unavoidably subject to casualties and serious interruptions, and in crowded localities may only more rapidly circulate impure air. [HOSPITALS.]

By the census of 1871 it has been ascertained that in England the pop. is equal to 1 person to every 7340 square yards ; in Wales 1 person to 18,777 square yards ; in E. and W. together 1 to 7953 square yards ; in Scotland 1 to 28,084 square yards ; in Ireland 1 to 18,621 square yards. In the U.K. as a whole the pop. is one person to every 11,935 square yards, or about 260 persons to the square mile. In the U.K. the area of a county averages 1037 square miles ; in England 1273 square miles, 1017 in Ireland, 923 in Scotland, 615 in Wales.

The Reg.-Gen. for Scotland, in his report for the 3rd quarter of 1872, says :

The influence of density of the pop. on the deaths may even be traced in the 8 divisions of the counties of Scotland. Thus for every 10,000 persons in each division, there occurred in the ann. proportion of 131 deaths in the northern division, with 36 persons to a square mile ; 158 deaths in the southern division, with 64 persons to a square mile ; 185 deaths in the east-midland division, with 134 persons to a square mile ; 196 deaths in the south-eastern division, with 253 persons to a square mile ; and 236 deaths in the south-western division, with 516 persons to a square mile.

Regarding the United States, we have the following facts, drawn from the census of 1870 :—The total area of the U.S. is 3,603,884 square miles, of which 1,984,467 square miles are contained in the 37 States of the Union, and 1,619,417 square miles in the Territories. In the States in 1870 the density of pop. was 19'21 persons to the square mile ; in 1860 it was 18'10. In the Territories in 1870 the pop. averaged 1 person to 4 square miles, and in 1860 1 person to 5 square miles. The Census demonstrated that Philadelphia had about as many dwelling houses as New York and Brooklyn combined,

although these cities have nearly twice the pop. of Philadelphia. In New York there are 15 persons to a dwelling; in Brooklyn nearly 9; and in Philadelphia 6.

The following T., showing the density of pop. of the principal states and territorial divisions of the world, as drawn from the latest return, is given by Mr. F. Martin in the last ed. of his *Statesman's Year Book*, 1873:

States and Territorial Divisions.	Census Year.	Population.	Area—English Square Miles.	Pop. per Sq. Mile.
Belgium	1870	5,087,105	11,412	451
England and Wales	1871	22,704,108	58,320	389
Saxony	1871	2,556,244	6,777	377
Netherlands	1870	3,915,956	13,464	291
Chinese Empire.....	1812	369,633,000	1,297,999	289
Gt. Britain and Ireland....	1871	31,817,108	119,924	265
Wurtemberg	1871	1,818,484	7,675	249
Italy	1871	26,796,253	112,677	237
British India	1871	190,277,644	963,929	207
German Empire.....	1871	41,058,139	212,091	193
Prussia	1871	24,693,066	137,066	180
Switzerland	1870	2,669,147	15,233	175
Ireland	1871	5,402,759	31,874	169
Bavaria	1871	4,861,402	29,347	167
Austria and Hungary	1869	35,904,435	226,406	158
France	1872	36,102,821	201,900	150
Denmark	1870	1,784,741	14,553	111
Scotland	1871	3,358,613	30,685	109
Portugal	1868	3,995,152	36,510	108
Spain	1860	16,301,850	182,758	90
Greece	1871	1,457,894	19,941	73
Ottoman Empire	1844	35,350,000	1,812,048	20
Sweden and Norway	1871	5,905,542	188,771	19
United States	1870	38,558,371	3,603,844	11
Russian Empire.....	1867	82,172,022	7,861,330	10
Mexico	1871	9,176,082	1,030,442	9
Brazil	1867	9,858,000	3,100,104	3
Argentine Confederation	1869	1,736,922	515,700	3

Considerations of Density of Pop., and the evils resulting therefrom, arise in DISEASE, PUBLIC HEALTH, SICKNESS, and TOWN LIFE.

DEODAND (from the Latin *Deo dandum*, to be given to God).—Deodands seem to have been originally designed as an expiation for the souls of such as were snatched away by sudden death; and for that purpose were to be given to Holy Church: in the same manner as the apparel of a stranger who was found dead was applied to purchase masses for the good of his soul. And this may account for that rule of law that no deodand was due when an infant under the age of discretion was killed by a fall from a cart or horse, or the like, *not being in motion*; whereas if an adult person fell from thence and was killed, the thing was certainly forfeited—such infant being presumed incapable of actual sin, and therefore not needing a deodand to purchase propitiatory masses.

That was the law if a person were killed by a fall from a thing standing still. But if a horse, an ox, or other animal, of his own motion, kill as well an infant as an adult, or if a cart ran over him, they should in either case be forfeited as deodands: which (says the learned Bracton) was grounded upon this additional reason, that such misfortunes were in part owing to the negligence of the owner: and therefore he was properly punished by such forfeiture. Where a thing not in motion was the occasion of a man's death, that part only which was the immediate cause was forfeited; as if a man were climbing up the wheel of a cart, and was killed by falling from it, the wheel alone was a deodand. But wherever the thing was in motion, not only that part which immediately gave the wound,—as the wheel which ran over his body,—but all things which moved with it and helped to make the wound more dangerous—as the cart and loading which increased the pressure of the wheel—were forfeited. It mattered not whether the owner of the thing moving to the death of a person was concerned in the killing or not: for if a man killed another with my sword, the sword was forfeited. And therefore in all indictments for homicide the instrument of death and the value were presented and found by the grand jury,—as that the blow was given by a certain bludgeon, value *threepence*!—that the King, or his grantee, might claim the deodand, or its commuted value. But it was no deodand unless it were presented as such by a jury of 12 men; and it came to be determined that deodands only accrued in case of misadventure, and were not legal in case of murder or manslaughter.

Deodands, with other forfeitures of that class, came, prob. about the period of the Reformation, and as a result of it, to be granted to the King—the head of the Reformed Church. Afterwards, perhaps on account of the difficulty of collecting such an uncertain item of Imperial revenue, they became granted to or vested in the lords of manors; but again, to keep more within the scope of the orig. design, the deodands, and the fines in lieu of them, were in many cases applied to the use of the poor. We have ourselves been present at an inquest at which the *wheel of a coach*, which passed over and killed a drunken man lying in the road, was fined 10s., payable to the lord of the manor!

No deodands were due for accidents happening upon the high sea: as being out of the jurisdiction of the Common Law; but if a man fell from a boat or ship in fresh water and was drowned, it hath been held that the vessel and cargo were in strictness of law a deodand, and as such would appertain to the High Admiral. If a man riding through a river was thrown from his horse by the violence of the water and drowned, his horse was not a deodand, for his death was caused *per cursum aque*.—*Law Dict.*

This was the state of the law down to 1st Sept. 1846, when deodands were abolished.

The 9 & 10 Vict. c. 62 (1846)—*An Act to Abolish Deodands*—is one of commendable brevity:

Whereas the law respecting the forfeiture of chattels which have moved to or caused the death of man, and respecting deodands, is unreasonable and inconvenient: be it enacted, etc., that from and after the 1st Sept., 1846, there shall be no forfeiture of any chattel for or in respect of the same having moved to or caused the death of man; and no coroner's jury sworn to inquire upon the sight of any dead body, how the deceased came by his death, shall find any forfeiture of any chattel which may have moved to or caused the death of the deceased, or any deodand whatsoever; and it shall not be necessary in any indictment or inquisition for homicide to allege the value of the instrument which caused the death of the deceased, or to allege that the same was of no value.

Thus ended one of the most remarkable of the many strange customs incorporated into the English law. But in the same session was enacted Lord Campbell's Act for securing compensation to the families of persons killed by negligence, which has been found in many respects a more effectual remedy.

The principle of the deodand is full of wisdom, as it recognizes the fact that accidental deaths may be indirectly caused; and by inflicting fines on the owners of dangerous animals, machinery, and other property, exercises a salutary check upon responsible parties.—Dr. Farr, 3rd Rep. Reg.-Gen. Again: "There can be no doubt that if every van or carriage that killed a man in Lond. were forfeited, it would lead to an immediate diminution of the 200 ann. deaths in the streets."—31st Rep.

DEODANDS ABOLITION ACT.—9 & 10 Vict. c. 62 (1846).

DEODORIZERS.—Disinfectants; substances which act on fetid and offensive effluvia, and destroy their unpleasant odour, as chlorine and charcoal.

DEPARCIEUX, ANTOINE, Jun., nephew of the Déparcieux, sen.—He pub. in Paris in 1781: *Traité des Annuités, ou des Rentes à Terme*—i.e. annu. certain. This work contains 12 pages of T. of the values of those annu., all printed from copper-plates; but Mr. Milne was not, after a careful examination, highly impressed with their value.

DEPARCIEUX, ANTOINE, Sen. [frequently called De Parcieux, and indeed so called by ourselves in the earlier part of this work].—An able French mathematician, born at Cessoux, near Nismes, in 1703. His father was a poor peasant, unable to give him any education; but by the intervention of a rich gentleman in the neighbourhood he obtained an education at the College of Lyons, where he showed a considerable capacity for mathematics. He afterwards went to Paris, and obtained considerable notoriety, and a very good income, by the manufacture of sun-dials.

He pub. his first work, on *Astronomical Tables*, in 1740; in 1741 a *Treatise on Trigonometry, with T. of Logarithms*. In 1746 he pub. the work with which we have most to do: *Essai sur les Probabilités de la Durée de la Vie Humaine*. Same year, *Réponse aux Objections contre l'Essai* [answer to objections to the last-named work]. And in 1760, *Additions à l'Essai*.

The work of 1746 is divided into 3 parts:—1. Treats of annu. certain, and a little algebra is employed; all the remainder is written in a popular rather than a technical style. 2. Contains the "Essay on the Prob. of Human Life," wherein the author explains the construction of his several T. of Mort., and gives an account of the regis. from which they were derived. The author does not go deeply into the subject. 3. Treats very briefly of L. annu. and tontines. The work contains 22 T.; the 13th and the 7 next preceding (which are abstracts of the regis. his T. of Mort. were constructed from), "I consider to be some of the most valuable that have ever been pub., and they must have cost him great labour."—*Milne*, 1815.

This work appears to have been more read upon the Continent, and to have contributed more to the diffusion of this kind of information there, than all the other writings on the subject during the last century. The art. *Rentes Viagères* in the French *Encyclopédie* is acknowledged to have been taken entirely from it, as was also the art. *Vie, Durée de la*.

Regarding the T. of Mort. given in the Essay, we shall speak of it under DÉPARCIEUX'S T. OF MORT.

Déparcieux states that in 1744 he suggested to M. Aubert, the commissary who at that time prepared the Bills of Mort. for Paris, the expediency of distinguishing the sexes in the

columns of births and deaths, which had not been done previously, but was in consequence of this commenced with the year 1745, and has been continued ever since.

The work became scarce at a very early date. M. De Saint-Cyran, in his work pub. in 1779, speaks of it as then rare.

Halley first called attention to the *vie probable*, or age to which it is probable, or (in Halley's words) to which it is an even wager, that a person will live; but it appears to have been Déparcieux who first adverted to and defined *Vie moyenne*. We may remark (says McCulloch) that our term "expectation of life" corresponds precisely with the *Vie moyenne* of Déparcieux, and not, as might at first sight be supposed, with *Vie probable*.

Déparcieux, in add. to his works enumerated, pub. no less than 16 memoirs among those of the Paris Academy, between the years 1735 and 1768.

He died in 1768, aged 65.

DEPARCIEUX'S (FRENCH) MORTALITY TABLE.—This T. was drawn from two sources.

1. From the list of nominees in two French tontines set on foot in 1689 and 1696, supplemented in a very small degree with the short experience of a third tontine, created in 1734. 2. From lists of certain religious persons of either sex belonging to various monasteries and convents of Paris in the early part of the last century. The experience of each of these classes of persons was sufficiently extensive to supply a trustworthy law of mort. The T. was framed in 1742, and pub. in 1746, *Essai sur les Probabilités de la Durée de la Vie Humaine*, spoken of more in detail in the preceding art.

TABLE OF MORT. AND EXPECTATION OF MEMBERS OF FRENCH TONTINES.—

Déparcieux, 1746.

Age.	Living.	Dying.	Expectation.	Age.	Living.	Dying.	Expectation.
3	1000	30	47'67	49	590	9	21'08
4	970	22	48'08	50	581	10	20'42
5	948	18	48'25	51	571	11	19'75
6	930	15	48'17	52	560	11	19'08
7	915	13	47'00	53	549	11	18'50
8	902	12	47'67	54	538	12	17'83
9	890	10	47'33	55	526	12	17'25
10	880	8	46'83	56	514	12	16'67
11	872	6	46'25	57	502	13	16'00
12	866	6	45'67	58	489	13	15'42
13	860	6	44'92	59	476	13	14'83
14	854	6	44'17	60	463	13	14'25
15	848	6	43'50	61	450	13	13'67
16	842	7	42'83	62	437	14	13'00
17	835	7	42'17	63	423	14	12'42
18	828	7	41'50	64	409	14	11'83
19	821	7	40'83	65	395	15	11'25
20	814	8	40'25	66	380	16	10'67
21	806	8	39'58	67	364	17	10'08
22	798	8	39'00	68	347	18	9'58
23	790	8	38'42	69	329	19	9'08
24	782	8	37'75	70	310	19	8'67
25	774	8	37'17	71	291	20	8'17
26	766	8	36'58	72	271	20	7'75
27	758	8	35'92	73	251	20	7'33
28	750	8	35'33	74	231	20	6'92
29	742	8	34'67	75	211	19	6'50
30	734	8	34'08	76	192	19	6'08
31	726	8	33'42	77	173	19	5'75
32	718	8	32'83	78	154	18	5'33
33	710	8	32'17	79	136	18	5'00
34	702	8	31'50	80	118	17	4'67
35	694	8	30'92	81	101	16	4'42
36	686	8	30'25	82	85	14	4'08
37	678	7	29'58	83	71	12	3'83
38	671	7	28'92	84	59	11	3'50
39	664	7	28'17	85	48	10	3'17
40	657	7	27'50	86	38	9	2'92
41	650	7	26'75	87	29	7	2'67
42	643	7	26'08	88	22	6	2'33
43	636	7	25'33	89	16	5	2'00
44	629	7	24'58	90	11	4	1'75
45	622	7	23'92	91	7	3	1'50
46	615	8	23'17	92	4	2	1'25
47	607	8	22'42	93	2	1	1'00
48	599	9	21'75	94	1	1	0'00

For the purpose of constructing the T., the nominees in the tontine of Nov. 1689 were divided into 14 classes in the 14 equal intervals of age between birth and 70 years. Those of the tontine of Feb. 1696 were distributed into 15 classes, the last comprehending persons between 70 and 75 years when nominated. M. Déparcieux obtained the number of nominees in each class at the time of its being completed; and from the lists that were pub. ann., wherein the day of the decease of each nominee was given, he constructed his 6th and 7th T., which show the ann. mort. which took place in each class until the commencement of the year 1742, when his obs. terminated. He also made use of such data as the tontine of 1734 could furnish.

It was from this data that he constructed the preceding T. (see page 262).

[We give the fractions in the expec. col. as given by Milne,—we observe some variations in different issues of the T. in this respect.]

It will be observed that this T. gives an expec. greater than the *Northampton* T. at all except the extreme ages. On the other hand, it is below the *Carlisle* T. at all ages, and the same in respect to Finlaison's *Government* T. It corresponds very nearly with the *Equitable Experience* T., and at ages above 20 with the *Experience* T. No. 1; but it is at all the ages over 10 above the *English Life* T. It will be understood that the T. affords no guide to the rate of mort. in France generally.

This T. was given in the 3rd ed. of De Moivre's *Doctrine of Chances*, 1756; also in Ferguson's *Tables and Tracts*, etc., 1771; and by De Flourencourt in his work on *Political Economy*, 1781.

Milne, after a critical examination of the mode of construction employed by Déparcieux, arrived at the conclusion that the rate of mort. shown for young lives must be less, for old lives greater, than the truth; "and at some intermediate age, where the opposite errors in the method bal. each other, it will be right." He continues:

The expec. of life at the old ages according to this T. must therefore be too low, and those for the young sometimes too high, but not so much: because the reduced expec. for the old lives tend to correct the error in the expec. for the young ones arising from the cause first mentioned.

The expec. of life in old age according to this T. has also been reduced, as M. Déparcieux has himself observed, by his fixing the limit of life at 95, although some of the nominees died at all ages between that and 100, and 2 in their hundredth year. No doubt more would have died at these advanced ages, and prob. some beyond 100, if the obs. had been continued longer: for when they terminated, only 5 of the oldest classes out of the 15 had become extinct, and none of the youngest class had arrived at the age of 60.

Whatever has been advanced here regarding the expec. of lives applies equally to the values of annu. depending upon them.

To determine the law of mort. among the Benedictine monks of St. Maur, Déparcieux took the ages at which all entered that congregation between 1607 and 1669, and the ages at which all of these died,—the last of them having expired in 1745. For all the other monks, and for the nuns, he procured from the different religious houses the ages at which all died in them from 1685 till the middle of 1745.

From these documents he constructed his T. for the monastic orders in the same manner as that for the nominees in the tontines. The following T. (see page 264) gives in a compact form the results of his investigations into these several classes.

Mr. Milne considers that the objections which he applied to the Tontine Life T. do not apply to this T. "in any material degree": for all the monks in the registers to which Déparcieux had access took the vow between 16 and 25, and most of them at about 20 years of age. He continues:

As M. Déparcieux ascertained the ann. mort. at all ages among the Benedictine monks of St. Maur in his regis. from their first entrance into the order until their entire extinction; and the numbers of the living in the other sos. of the monks, as well as that of the nuns, continued stationary, or nearly so; his determination of the laws of mort. that obtained in the monasteries appears to be more satisfactory than that which he has assigned for the nominees in the French tontines.

None of the monks in his regis. attained to 96 years of age, nor any of the nuns to 99.

M. Déparcieux was of opinion that these religious persons were at first better chosen lives than the annuitants, but that after 45 or 50 years of age, the peculiar disadvantages of their situation began to operate sensibly upon their vitality, and impaired it considerably towards the close of life. He has, says Milne, assigned reasons for this opinion, "which appear to me to justify it."

The total lives under obs. in the production of these T. was 9260, with 7933 deaths. The mean number of lives obs. upon being 5293. The results of these T. were afterwards verified by Mr. John Finlaison, by comparison with the mortuary regis. of several other religious houses in France, for both sexes. (See 1825.)

It was by means of the T. last given that the superior longevity of females was first demonstrated. [FEMALE LIFE.]

We now propose to pass in review some of the criticisms which have been bestowed on Déparcieux and his T. by later writers. It is usual to speak of Déparcieux's "Table": but this arises from his having included all the six branches of his inquiry in parallel cols. in one T., while he gave the expec. for the same divisions in a separate T. We consider the arrangement we have here adopted as more convenient.

Dr. Price, in the 4th ed. of his *Reversionary Payments*, 1783, gives an abstract of Déparcieux's T. He says:

Tables of mort. for such lives [annuitants] have been pub. by M. Déparcieux in France from lists of

MORTALITY EXPECTATION TABLES FOR THE RELIGIOUS HOUSES OF PARIS.—
Déparcieux, 1746.

Age.	Benedictine Monks of St. Maur.			Other Benedictine Monks.			Monks of St. Gènevieve.			Many other Monks.			Many Nuns in various Convents of Paris.		
	Living.	Dying.	Expec.	Living.	Dying.	Expec.	Living.	Dying.	Expec.	Living.	Dying.	Expec.	Living.	Dying.	Expec.
20	814	6	38'33	814	6	38'50	814	6	36'50	814	6	39'33	814	6	40'17
21	808	6		808	6		808	7		808	6		808	6	
22	802	6		802	7		801	7		802	6		802	6	
23	796	6		795	7		794	7		796	6		796	6	
24	790	6		788	7		787	7		790	6		790	6	
25	784	5	34'67	781	6	35'00	780	6	33'00	783	6	35'75	783	6	36'67
26	779	5		775	6		774	6		777	6		777	6	
27	774	5		769	6		768	7		771	6		771	6	
28	768	6		763	7		761	7		765	6		765	7	
29	762	6		756	7		754	8		759	6		758	7	
30	756	7	30'83	749	6	31'42	746	8	29'42	753	6	32'17	751	7	33'17
31	749	7		743	7		738	8		744	6		744	7	
32	742	8		737	6		730	9		741	7		737	7	
33	734	8		731	7		721	9		734	7		730	8	
34	726	8		724	7		712	10		727	7		722	8	
35	718	8	27'42	717	7	27'67	702	10	26'08	720	6	28'50	714	7	29'67
36	710	8		710	7		692	10		714	7		707	7	
37	702	9		703	7		682	10		707	7		700	8	
38	693	9		696	7		672	11		700	8		692	8	
39	684	9		689	8		661	11		693	8		684	8	
40	675	9	24'00	681	8	24'00	650	10	23'00	685	8	24'75	676	9	26'25
41	666	9		673	8		640	10		677	8		667	9	
42	657	9		665	9		630	10		668	10		658	9	
43	648	9		656	9		620	10		658	10		649	9	
44	639	10		647	10		610	10		648	10		640	9	
45	629	10	20'58	637	10	20'50	600	12	19'67	638	10	21'42	631	8	22'92
46	619	10		627	10		588	14		628	10		623	9	
47	609	11		617	11		574	15		618	10		614	9	
48	598	11		606	11		559	16		608	10		605	9	
49	587	12		595	12		543	15		598	10		596	9	
50	575	13	17'25	583	12	17'17	528	15	17'00	588	12	18'00	587	10	19'50
51	562	14		571	13		513	15		576	14		577	11	
52	548	15		558	14		498	15		562	14		566	12	
53	533	15		544	15		483	14		548	14		554	12	
54	518	15		529	15		469	14		534	14		542	12	
55	503	15	14'33	514	16	14'17	455	14	14'33	520	14	15'00	530	13	16'25
56	488	16		498	16		441	14		506	14		517	13	
57	472	16		482	16		427	14		492	15		504	13	
58	456	16		466	17		413	14		477	16		491	14	
59	440	17		449	17		399	15		461	16		477	15	
60	423	17	11'67	432	17	11'33	384	16	11'50	445	16	12'17	462	16	13'25
61	406	18		415	18		368	16		429	17		446	18	
62	388	18		397	19		352	17		412	18		428	18	
63	370	18		378	19		335	18		394	18		410	18	
64	352	19		359	20		317	19		375	19		392	18	
65	333	19	9'00	339	20	8'75	298	19	9'08	356	20	9'50	374	17	10'83
66	314	19		319	20		279	19		336	20		357	17	
67	295	19		299	21		260	19		316	20		340	18	
68	276	20		278	21		241	19		296	20		322	18	
69	256	20		257	22		222	18		276	20		304	18	
70	236	21	6'67	235	23	6'50	204	18	7'08	256	20	7'25	286	19	8'42
71	215	21		212	23		186	17		236	20		267	19	
72	194	21		189	21		169	16		216	20		248	19	
73	173	20		168	20		153	15		196	19		229	19	
74	153	19		148	19		138	14		177	19		210	19	
75	134	18	5'00	129	18	4'83	124	14	5'17	158	18	5'25	191	19	6'25
76	116	17		111	17		110	14		140	18		172	18	
77	99	16		94	16		96	14		122	18		154	18	
78	83	15		78	14		82	14		104	17		136	17	
79	68	13		64	13		68	13		87	16		119	16	
80	55	11	3'67	51	11	3'58	55	12	3'58	71	15	3'67	103	15	4'58
81	44	9		40	9		43	9		56	13		88	14	
82	35	8		31	7		34	7		43	10		74	14	
83	27	7		24	6		27	6		33	8		60	13	
84	20	5		18	4		21	5		25	6		47	12	
85	15	4	2'67	14	4	2'75	16	5	3'00	19	5	2'75	35	9	3'92
86	11	3		10	3		11	4		14	4		26	6	
87	8	3		7	2		7	3		10	3		20	4	
88	5	2		5	1		4	2		7	2		16	2	
89	3	1		3	1		2	1		5	2		14	2	
90	2	1	2'50	2	1	2'50	1	1	2'50	3	1	1'83	12	2	3'25
91	2	1		2	1		1	1		2	1		10	2	
92	1	1		1	1		1	1		1	1		8	2	
93	1	1		1	1		1	1		1	1		6	2	
94	0	0		0	0		0	0		0	0		4	2	
95	...	...		...	...		...	...		...	...		2	1	2'00
96	...	...		...	...		...	...		...	...		1	0	
97	...	...		...	...		...	...		...	...		1	0	
98	...	...		...	...		...	...		...	...		1	1	
99	...	...		...	...		...	...		...	...		0	0	

the French tontines, and by M. Kersseboom, in Holland, from some regis. of Dutch annuitants. *That nothing on this subject may be wanting which I am able to furnish*, I have here inserted these T. with the add. of the expec. of life for every fifth year, according to each of them. (See 1843.)

The Baron Maseres, in his *Principles of the Doctrine of Life Annu.*, 1783, after setting forth the differences between *Kersseboom's* T. of Dutch Annuitants and *Déparcieux's* T., continues :

But which of them upon the whole deserves to be considered as the more exact I will not pretend to determine. Only thus much I will venture to observe concerning them : That as the soil and temperature of the air in England bear a greater resemblance, as I conceive, to the soil and temperature of the air in the northern parts of France than to those of Holland, which is so full of moist vapours arising from the waters amongst which it is situated; and the Dutch are in general reckoned to be shorter lived than either the French or the English; it seems reasonable to suppose that Mr. Déparcieux's T., which is formed from obs. made in France, is more likely to afford a just measure of the duration of the lives of Englishmen in the like situation and circumstances of life—that is, proprietors of Gov. L. annu.—than the T. of Mr. Kersseboom, which is formed from the like obs. made in Holland. And therefore I conceive that, with respect to the valuation of annu. on the lives of persons living in England, and more especially of annu. to be granted at any time by the Gov., Mr. Déparcieux's T. deserves to be preferred to the other. And accordingly I shall have recourse to it, in the ensuing pages, for the solution of the few questions or examples, upon this subject, which I shall have occasion to consider.

He indeed went much further than here indicated, for he calculated and pub. in the work from which we quote an extensive series of joint life annu. values, based upon Déparcieux's T.

Mr. Francis Baily, very early in his *Doctrine of Annuities*, etc., pub. in 1813, referred to Déparcieux's T. as affording "proper grounds for calculating the value of annu.," adding his reasons :

For it appears from the obs. of M. Déparcieux, that the chance of living amongst a set of Gov. annuitants is in almost every period of their existence much greater than amongst an equal number of indifferent persons living in the most healthy part of the globe, and which consequently shows that the *Northampton* T. are a very inaccurate index of the rate of mort. amongst a set of persons who purchase annu. on their own lives.

Mr. Milne, in the Intro. to his *Treatise on Annuities*, etc., 1815, says :

The work of M. Déparcieux, from which his T. have been taken, has long been scarce, and I have given them both for that reason, and because they are among the most curious and correct, and of the best authority, that have yet been pub.

Déparcieux's work contained T. of annu. values at 12 different rates of int. from 2 to 10 p.c., but those for joint lives only at $3\frac{1}{2}$ and $4\frac{1}{2}$ p.c.; and the combinations they include are only those of ages that are equal, or that differ by 5 or 10 years, and the multiples of 10. Mr. Milne says [art. "Annu." in *Ency. Brit.*]:

There is reason to believe that the values in these T. at all ages under 75 or 80 years are nearer the truth for the average of England than any others extant; but certainly for the average of lives on which annu. and rev. depend. After that period of life, however, they are too small; and in most cases it is difficult to derive the values of joint-lives from them with sufficient accuracy, on account of the contracted scale they have been calculated upon.

He adds :

For nearly 70 years after its pub. M. Déparcieux's T. was the only one from which the values of L. int. and rev. depending upon lives could be determined with considerable accuracy. But the comparatively high values of annu., according to that T., were always supposed to arise from the careful selection of the lives; notwithstanding that they were nearly all inhabitants of Paris and its environs. . . . At that time (1689-96) the Parisians were much worse lives than during the last 50 years, and a judicious selection was much less likely to be made then than now.

The data upon which M. Déparcieux's T. was founded being pub., Mr. John Finlaison reconstructed a T. from the same, upon a more extended scale than the original, and he found that the duration of life at that time in France was nearly as good as it was in England a century later amongst people of the same class, and vastly superior to that in England at the same date. He stated to the Parl. Committee on F. Sos., 1825 : "No authentic T. have ever since been pub. in France upon any data that could be relied upon : that will show the state of human existence in that country at the present day."

Mr. Finlaison, in his Rep. upon the Mort. of the English Gov. Annuitants, laid before Parl. in 1829, said :

No observations, other than those of mine, have as yet, to my knowledge, ever been pub., the foundation of which rests on the same or similar indispensable materials, always excepting those of Mr. W. Kersseboom on the life annuitants in Holland, executed in 1742, and those of M. Déparcieux, first on the nominees of two tontines in France, from 1695 to 1740, and secondly, on very great numbers of monks and nuns in France, who died in the century preceding—both pub. in 1746. The obs. of those two eminent men have been *de novo* subjected to calculation by me in every case, and to the extent that the elementary materials which they respectively furnish would afford; but, as will more fully appear at some future opportunity, *neither the materials of the one nor the other are or ever were capable of showing with certainty the rate of mort. to which the classes of persons so observed upon were subject*, unless that rate had no variation in the course of a century, a point which cannot be taken for granted.

Again :

M. Déparcieux had not the advantage of personal access to the original record of the two tontines on which he has made his obs., but only compiled his facts from the file (not quite complete) of the flying sheets, which, for the information of shareholders, are in all tontines periodically distributed to announce the death of nominees. . . . I find on computing an obs. on the two tontines separately, which commenced within two or three years of each other, that the rate of mort. in the second, reckoning from the age of 40 and upwards, was decidedly and unaccountably less than in the first; and that to such a degree as to make a difference generally of more than a whole year in the mean duration of life at every age, and at some ages twice as much.

In the 5th Rep. of Reg.-Gen., pub 1843, it is stated (p. 17) that the *Northampton T.* "ought not to have been pub. after the appearance of the admirable Essay and T. of Déparcieux in 1746." We have seen how Dr. Price treated the matter, under date 1783 in this art.

Mr. A. G. Finlaison, in his *Rep. and Obs. on the Mort. of Gov. Annuitants*, 1860, followed up the subject :

The French tontine nominees of 1689 and 1696 would seem to offer a complete parallel to those of the English tontine of 1789, a century later. But there is the unfortunate circumstance that the sexes are not distinguished in Déparcieux's obs. of the tontine ; and it is impossible to tell in what relative proportions they were present in the tontine lists. The experience—notwithstanding the omission of the distinctions of sex—was afterwards worked up into extensive joint-life annuity T. by the late Baron Maseres.

Again :

With regard to the religious persons : Déparcieux fortunately computed the law of mort. for each sex. . . . Reasoning from general circumstances, it might perhaps be thought that the untroubled conventional life of persons living in France 130 years ago, would present a not unapt case for comparison with the life annuitant of the present day. The result of any such comparison, however, will tend to show that the vitality of the monks and nuns was much inferior to the vitality not only of the life annuitant of the present day, but also to that of the French tontine annuitant of Déparcieux's time. . . . As the mean duration of life among the nuns, although superior to that of the monks, is nevertheless inferior to the expect. of life possessed by the tontine nominees, among whom were included a vast proportion of males, it is only reasonable to suppose that the rule of conventional life largely influenced the result. [MORTALITY TABLES.]

DEPARTURE OF SHIP.—The time of sailing, in most voyages, is so material that in many pol. there is a warranty to sail on or before a given day. Independently of the effect which a difference of seasons may have upon the risk, and of the necessity there is that the voyage shall end in a reasonable time, it is of great importance to the insurer, where the pol. is "at and from" a place, that there be a day fixed for the ship's departure, in order that duration of the risk at the place may be ascertained. This, like every other warranty, must be understood according to the commercial import of it, and must be strictly performed.—*Marshall*, 5th ed., 1865.

The question of departure presents itself in several other forms.

The *Ins. Ordin.* of France, 1681, says : "If the voyage be entirely broken before the departure of the ship by the act of the insured, the ins. shall be annulled, and the insurers return the prem., reserving an half p.c." Valin, in his famous *Commentary* upon this Ordin., says :

Here is an advantage which the insured has over the insurer : as soon as the pol. is signed, the insurer cannot go back from it and disengage himself without the consent of the insured ; in reality neither can the insured desist from the ins. against the will of the insurer ; but what he hath not the power of doing directly, he may do *indirectly*, either in breaking up the voyage before the departure of the ship, or not putting any goods on board. If, however, the goods be shipped, and the ship got under sail, the insured is then as firmly bound as the insurer.

The Ordin. of *Rotterdam*, 1721, says :

Ships and goods already departed may be assured, provided that circumstance and the time of the departure be mentioned in the pol. ; unless the insured be ignorant thereof : in which case, however, it must be expressed in the pol. that the insured had no knowledge thereof. And the assurers shall also be permitted to prove that the assured had knowledge thereof. Which this appearing, the assured shall not only have no action against the assurer, but shall besides be liable to pay him double prem. over and above the charges of procuring the proofs. And notwithstanding this the officer shall have power to proceed against the assured as a deceiver.

The Ordin. of *Stockholm*, 1750, says :

If a ship or goods be delayed in the loading beyond the time mentioned in the pol., so that it does not depart till a later season of the year, when the dangers of the sea are greater, the insured is of this to inform the insurer, who, as he runs a greater hazard, is entitled to such an add. to the first prem. as was current at the time of the ship's departure.

DEPONENT (from the Latin *depono*, to pay down).—A person who makes an affidavit ; a witness ; one who gives his testimony in a Court of Justice.

DEPORTATION.—Transportation ; exile into a remote part of the kingdom, with prohibition to change the place of residence ; exile, an abjuration, which is a deportation for ever into a foreign land, was anciently with us a civil death.—*Ayliffe*.

DEPOSIT.—Money lodged with a person or asso. as an earnest or security for the performance of some contract.

DEPOSIT ACCOUNT.—A sum lodged with a bank, or other monetary asso., with fixed specified terms as to rate of int. and notice required for withdrawal of whole or part of the deposit.

DEPOSIT ASSU. CO.—An asso. under this title was founded in Aberdeen in 1846. It appears never to have got into working order.

DEPOSIT ASSU. AND DISCOUNT BANK.—A co. under this title was regis. in 1855. It afterwards became the *Life Assu. Treasury*, under which title we shall deal with its hist.

DEPOSIT AND GENERAL LIFE INS. CO.—Founded in 1852, with an authorized cap. of £100,000, in shares of £5, of which but a comparatively small amount was at first *bona fide* subs. The regis. showed a subs. of £75,000. The prosp. said :

The fact of the enormous accumulations of the savings of the industrial classes of the community in benefit socs., savings banks, and other modes, has induced the promoters of this Co. to consider whether some of such savings could not be better invested in the way of L. assu. The result of that consideration has been the estab. under the auspices of a most eminent Act., of the *Deposit and Gen.*,

. . . combining with an ordin. L. assu. bus. some of the valuable uses of such inst., and thus to afford increased advantages to the provident classes to secure the fruits of their industry. . . .

Amongst the various modifications of L. assu., perhaps not one is so likely to conduce to the good of the provident classes as that of deposit—a plan which has been adopted and is now in prosperous operation in Scotland.

By this plan the payment of any sum from £1 upwards will purchase an unforfeitable and completely paid-up pol. for a sum payable on death proportionate to the money deposited, having regard to the age of the depositor.

The depositor may at any time borrow or receive back any part of the deposit, or add to it—the sum assured being regulated accordingly; or he may withdraw the whole deposit, and so put an end to the assurance.

The Co. desire to point out in what respects investment in the way of assu. differs from the system of saving in savings banks and F. sos. It is in the first place obvious that a great advantage is produced by the circumstance of the money saved with this Co. being returned at death, with the great increase which the principle of assu. involves. Other benefits are afforded by the opportunity of having the savings back for use during life, according to the various wants of the assured, upon terms so well calculated to induce a renewal of the saving when circumstances permit.

The insured were to consist of two classes :—“1. The deposit L. assu. class, which will be entitled to the sum assured by the money actually in deposit at death, and to all advantages of the deposit system explained above, together with a share in the profits.” 2. The ordin. L. assu. class, . . .” with parti. or non-parti. rates. Regarding the profits: *Ten-twentieths* (one-half) to pol.-holders, to be applied in either of the three ordin. methods, or by way “of annu. or endow.” *Two-twentieths* as a fund for “the relief of distressed shareholders, depositors to the extent of £5, and L. assurers who may have paid 5 years’ prem., or of their widows and orphans.” *Three-twentieths*, “together with such portion of the funds of the Co. for the purpose as the directors may determine, to form a reserved accumulating fund until the account thereof shall be sufficient to pay off and purchase up the cap. or shares of the proprietary at the then market price, after which the Co. shall be declared and constituted a mut. assu. co., when all the profits will be divided amongst the assured entitled thereto, except one-tenth to be appropriated as a relief fund.” The remaining *Five-twentieths* among the proprietary, who were to receive int. at 5 p.c. on their paid-up cap. pending the add. of profits.

Among the “distinctive features” it was set out that “pol. of 5 years’ standing not void on account of suicide”; “diseased lives, and lives ‘declined’ by other offices, accepted on equitable terms.” Premiums may be payable *weekly*, fortnightly, monthly, and surrender values given after 5 years; and free pol. for amount of surrender value after 7 years. Pol. “indisputable,” by special clause in the deed; “and, to put this matter beyond a doubt, the common declaration as to the health and habits of the person assured will not be inserted in the pol.”

The deposit T. and the special features of that branch will be given under DEPOSIT INS.

The prosp. contained some well-known names: Sir Charles Price, banker, was one of the trustees; Mr. William Prinsep was a director; Mr. F. G. P. Neison was Consulting Act. (and was understood to have been active in the formation of the Co.); while Mr. F. P. F. Strousberg was inspector of agencies; and Mr. Charles W. Bevan was Sec.

The Co. from a very early period of its existence showed signs of having entered upon a troublesome career. By the end of 1853 it was found that the Co. was in debt some £9000. A committee was appointed, with Lord Drumlanrig for its chairman. It reported in effect as follows: The existing difficulties were to be attributed to having limited the subs. cap. to £10,000, and having no person on the management who understood L. ins. If £10,000 more were subs., it would not put the Co. in the position it ought to be, but it would release it from debt. It was resolved that steps be taken to secure more cap.

In April, 1854, the debts of the Co. amounted to £15,000; the assets were but £500.

In 1854 the Sec., Mr. Bevan, retired. In July, 1855, he was convicted at the Old Bailey on the charge of having embezzled the funds of the Co. [BEVAN, C. W. W.]. Later in the same year actions were brought against shareholders to recover calls. In such an action against Mr. Ayre the younger, solr., Bristol, Mr. Bevan was called for the defence. “He was brought up in custody from Holloway Prison.” He said the majority of the directors had not paid upon their 500 shares. That would appear by the ledger. The persons who signed the deed were not responsible persons. There were at least 5000 [shares held by?] what we call ‘stags’ in the City, who received 6d. for signing each share. He knew that of his own knowledge; but it was not in his time. The shares actually paid upon amounted to about 8000 or 9000—not 15,000.

Mr. Cracknell, one of the directors, said on the same occasion :—“The directors never attempted to get the deed signed by men of straw; as soon as they heard it had been so signed, they expunged the names. The affairs of the Co. were as prosperous as could be expected in a young co., and the directors were gentlemen of station. The debts of the Co. were nearly all paid.”

The affairs of the Co. did not improve. In April, 1856, the auditors of the Co. prepared a report on the finances, in which was contained the following passage:

From the revenue account it will be seen that there exists a deficiency of income to meet expenses, and losses amounting to the large sum of £32,841 6s. 8d., and that no provision has been made for the current risks under policies amounting to £172,000; and moreover, that by the plan of your Co. a portion of the premis. already received and expended are liable to be demanded to be returned at any moment. . . . We observe that the sum of £1095 9s. 10d. has been paid to the proprietors as

dividends; notwithstanding that not only has no surplus accrued in any one year since the estab. of the Co., but, on the contrary, each year has shown a considerable balance against the Co.

Again :

... The expenses are considerably in excess of what the income of your Co. will justify. The shareholders will perceive that, leaving altogether out of the account their own capital, which has been expended, they owe £17,561 8s. 10d., while their total assets of every description amount only to £6800 13s. 5d., out of which sum £5154 14s. 3d. is unavailable. . . . We give it as our opinion, that until your Co. have discharged their liabilities, and are in possession of funds to meet their current risks, *they are not justified in issuing any new policies.*

The directors withheld this report from the shareholders, and substituted another of a very different character. Mr. Chatteris, one of the auditors, and a public accountant, thereupon addressed a letter to the *Times* [14th April, 1856], in which occurred the following statement :—"The Co. in question has expended in four years in working expenses, £36,839; in dividends to shareholders, £1095; in losses and deaths, £11,855; while their whole earnings have been £16,968: they owe to creditors (apart from shareholders) £17,561, with a banker's balance of £376. Their pol. risks amount to £172,000, and there is no reserve to meet them."

Shortly afterwards the bus. of the Co. was trans. to the *City of Lond.*, and the liq. of the affairs passed into the Court of Chancery, where it still remains. Mr. J. H. Doyle was appointed Sec. on the retirement of Mr. Bevan.

DEPOSIT BY LIFE INS. ASSO.—The Life Assu. Cos. Act, 1870 (sec. 3), provides as follows :

Every co. estab. after the passing of this Act within the U. K., and every co. estab. or to be estab. out of the U. K. which shall after the passing of this Act commence to carry on the bus. of life assu. within the U. K., shall be required to deposit the sum of £20,000 with the Accountant-General of the Court of Chancery, to be invested by him in one of the securities usually accepted by the Court for the investment of funds placed from time to time under its administration, the co. electing the particular security and receiving the income therefrom, and the registrar shall not issue a certificate of incorp. unless such deposit shall have been made, and the Accountant-General shall return such deposit to the co. so soon as its life assu. fund accumulated out of the prems. shall have amounted to £40,000.

With characteristic clumsiness, all reference to the mode of payment into Court and subsequent repayment were omitted, and had to be made the subject of a fresh enactment.

The 34 & 35 Vict. c. 58 (1871), enacts as follows :

Every sum required by the Life Assu. Cos. Act, 1870, to be deposited with the Accountant-General of the Court of Chancery, shall be paid into the Court of Chancery, and orders with respect to the payment of such money into and out of Court, and the investment and return thereof, and the payments of the dividends and interest thereof, may be from time to time made, altered and revoked by the like authority and in the like manner as orders with respect to the payment into and out of Court, and the investment of other money, and the application of the dividends and interest thereof.

This Act to be construed as one with Act of 1870.

In the following session (1872) it was found that this second or amending Act required yet further amendment; and hence the 35 & 36 Vict. c. 41—*An Act to Amend the Life Assu. Cos. Acts, 1870 and 1871*—was passed, which enacts as follows :

Whereas by the provisions of the "Life Assu. Cos. Acts, 1870 and 1871," a life assu. co. is required to pay a sum of money into the Court of Chancery by way of deposit, and the certificate of incorp. of such co. is not to be issued unless such deposit has been made, and such deposit is to be returned to the co. as soon as its life assu. fund amounts to the sum therein mentioned; and doubts have arisen as to the construction of the said provisions, and it is expedient to remove such doubts; be it therefore enacted as follows :

The said deposit may be made by the subs. of the memo. of asso. of the co., or any of them, in the name of the proposed co., and such deposit upon the incorp. of the co. shall be deemed to have been made by and to be part of the assets of the said co.

The said deposit shall, until returned to the co., be deemed to form part of the life assu. fund of the co., and shall be subject to the provisions of section 4 of the Life Assu. Cos. Act, 1870, accordingly. The Board of Trade may from time to time make, and when made revoke, alter, or add to, rules with respect to the payment and repayment of the said deposit, the investment of or dealing with the same, the deposit of stocks or securities in lieu of money, and the payment of the interest or dividends from time to time accruing due on any such investment, stocks, or securities in respect of such deposit. Any rules made in pursuance of this section shall have effect as if they were enacted in this Act, and shall be laid before Parl. within three weeks after they are made, if Parl. be then sitting, or if not, within three weeks after the beginning of the then next session of Parl.

The Board of Trade, in pursuance of the last-named powers, have made the following rules with respect to the payment into the Court of Chancery, and repayment of the deposit required to be made by a L. assu. co., in pursuance of the provisions of the Life Assu. Cos. Acts, 1870 and 1871; the investment of the deposit in securities, the deposit of stocks or securities in lieu of money, and the payment of the interest or dividends from time to time accruing due on any such stocks or securities.

1. In these rules the term "the Court" means the High Court of Chancery in England, and the word "company" means a co. as the same is defined in the second section of the Life Assu. Cos. Act, 1870.

2. Where any co. is acquired in pursuance of "The Life Assu. Cos. Acts, 1870 to 1872," to deposit the sum of £20,000 with the Accountant-General of the Court of Chancery, the said co., or the subs. of the memo. of asso. of the said co., or any of them, as the case may be (in these rules referred to as the promoters), may make application to the Board of Trade for a warrant, and the Board of Trade may thereupon issue their warrant to the promoters for such payment into court, which warrant shall be a sufficient authority for the co. or persons therein named to pay the money therein mentioned into the Bank of England, in the name and with the privity of the said Accountant-General, and for that officer to issue directions to such bank to receive the same, to be placed to his account there, ex parte the co. mentioned in such warrant, according to the method (prescribed by

statute or general rules or orders of Court or otherwise), for the time being in force respecting the payment of money into the said court, and without fee or reward.

Provided, that in lieu, wholly or in part, of the payment of money, the promoters may bring into court as a deposit an equivalent sum of bank annuities, or of any stocks, funds, or securities in which cash under the control of the Court is for the time being permitted to be invested, or of Exchequer bills (the value thereof being taken at the price at which the promoters originally purchased the same, as appearing by the broker's certificate of that purchase); and in that case the Board of Trade shall vary their warrant accordingly by directing the transfer or deposit of such amount of stocks, funds, securities, or Exchequer bills by the persons therein named, into the name or to the account of the said Accountant-General in trust to attend the orders of the Court, ex parte the co. mentioned in such warrant.

3. At any time when the office of the Accountant-General of the Court of Chancery is closed, a deposit under these rules may nevertheless be made, in the manner and subject to the regulations provided with respect to deposits by cos. by section 88 of the Lands Clauses Consolidation Act, 1845.

4. Where money is so paid into the Court of Chancery, the Court may, on the application of the co. or the persons named in the warrant of the Board of Trade, or of the majority or survivors of such persons, order that the same be invested in such stocks, funds, or securities as the applicants desire and the Court thinks fit.

5. In the subsequent provisions of these rules the term "the deposit fund" means the money deposited or the stocks, funds, securities, or Exchequer bills transferred or deposited, as the case may be, and the term "the depositors" means the co. or persons named in the warrant of the Board of Trade authorizing the deposit, or the majority or survivors of those persons, their executors, administrators, or assigns.

6. The Court shall, on the application of the depositors, order the deposit fund to be paid, transferred, or delivered out to the applicants, or as they direct, so soon as it is proved to the satisfaction of the Court that the life assu. fund of the co., in respect of which the deposit is made, accumulated out of prem. paid to the said co. amounts to the sum of £40,000.

7. The depositors shall be entitled to receive payment of the int. or dividends from time to time accruing on or in respect of the deposit while in court. And the Court may, from time to time, on the application of the depositors, make such order as may seem fit respecting the payment of the interest or dividends accordingly.

8. The issuing in any case of any warrant or certificate relating to deposit or to the deposit fund, or any error in any such warrant or certificate, or in relation thereto, shall not make the Board of Trade, or the person signing the warrant or certificate on their behalf, in any manner liable for or in respect of the deposit fund, or the interest or dividends accruing on the same, or any part thereof respectively.

9. Any application under these rules to the Court of Chancery shall be made in a summary way by petition.—W. R. Malcolm.

Board of Trade, 28th August, 1872.

The only Co., we believe, which has up to the present time made the deposit required by the preceding Acts is the *Continental* of New York, on opening an agency in Lond. during the present year. It made the deposit, but within 48 hours it was repaid by an order of the Court of Chancery—the ann. income of the Co. being over £40,000!

DEPOSIT INSURANCE.—Various attempts have been made to popularize Deposit Ins. in Gt. Brit., but hitherto without success. The system is particularly simple in its details; and inasmuch as it involves no obligation for future ann. or other payments, avoids one of the objections which is often urged against L. Ins. in the ordinary form. It is really a system of single prem. ins., reduced so as to come within the range of everybody who may desire its advantages. The plan of single prem. ins. has much to commend it, and it seems remarkable that it has not come into more general use. We propose to review the several schemes of Deposit Ins. which have been from time to time brought forward.

The *Brit. Commercial*, 1820, appears to have been the first co. which introduced the plan of Deposit Ins. in Gt. Brit. It furnished T. showing the amounts to be withdrawn at given periods in relation to weekly deposits of 2s. 6d.; or quarterly instalments of £2 11s., or in return for £100 paid down. The co. did not continue this branch of its business.

In 1837 the *Mutual Accommodation L.* was founded; but its scheme can be hardly said to fall within the scope of what is now understood by Deposit Ins.

In 1845 the *United Deposit Assu. Co.* was founded in Edin. Its chief feature was L. ins. on the deposit plan; and its advantages and also its working were explained in considerable detail. Mr. Archibald Borthwick, Accountant, was the Consulting Act. of the Co., and claimed to have been the originator of the system of Deposit Ins. This claim cannot be admitted in the face of the prosp. of the *Brit. Commercial*; but that Mr. Borthwick elaborated, if he did not succeed in popularizing, Deposit Ins. must be readily granted. We turn to the prosp. of the *United Deposit*; it furnishes the following example:

Take a party at the age of 30, and say that he deposits £10. By the *Carlisle T. of Mort.* his expect. is in round figures 34½ years. Further assume that the guaranteed rate of compound int. payable till his death, for the use of £10 deposited, is 3 p.c. p.a. By looking at any T. of compound int., it will be seen that the value of £10 presently paid down amounts at the end of 34½ years to £27 14s. 2d. This £27 14s. 2d. is just the sum which a co. dealing on the above rates would undertake to pay to a man aged 30 on his death, happen when it might, in return for a present deposit of £10, provided the ann. value of life decreased uniformly from year to year; but the decrement being unequal, the result given by the assu. co. varies a little on that account from the sum shown by an int. T. as above.

It will thus be seen how a L. assu. co. must be viewed as a deposit bank, receiving sums from a depositor to be accumulated periodically for his behoof at compound interest, during the period for which the co. calculate on retaining in their hands the deposits of cash which he has made, with the further most momentous advantage to the depositor, that if he die the next day after he has opened the assurance, his heirs [representatives] will receive the very same large accumulated and improved sum from the co. as if he had lived the average duration of life. Thus the depositor receives, in add. to all the benefits offered by a deposit or savings bank, or any other kind of investment or purchase, not only the guarantee of a favourable fixed rate of compound int. on his deposits till his death, accumulated for him periodically, without trouble or loss of time, but also he is absolutely guaranteed against the consequences of his dying before the arrival of that period up to which, according to the

average mort. of the country, it can be calculated that he, as one of the mass, will survive—but on his individually attaining which period he is not entitled to reckon one day.

To insure the general adoption by all classes of a plan so favourable, it is only necessary to show that a party can avail himself of it as easily as he can a bank of deposit—that he may pay in as much as he likes, and when he likes—that there is no obligation on him at any time to continue his payments or deposits beyond the amount which he may have paid in at the time; and further, that the fund which he is accumulating is always at his command.

Regarding the actual details of working, we find the following outline :

After the life of a party has been approved of by the Board of Directors, he is at liberty immediately to commence his deposit payments, which will be received at the Co.'s office as at a bank, at all times and in sums from £1 and upwards. After approval of his life as above, it is not intended that a party shall be called upon to produce a medical or other certificate every time he pays in a deposit; but in every case of his paying in he will be required to appear personally at the Co.'s office, and to sign a renewed declaration in the form referred to in the conditions of assu.

When a depositor wishes to operate upon the current value of his deposits with the Co., he will be allowed to do so at all times, and to draw out any sum from £1 upwards, as expressed in the conditions annexed.

The mode in which the bus. is transacted by the Co. will be still more easily understood, after the above explanations, from the following example, in the form of the schedule attached to the certificate or pol. which will be delivered by the Co. to each depositor after his life has been approved.

The following is the schedule referred to :

Date.	Cash Payments.	Amount of Cash.	Age, calculating from last Birthday		Assurance Value.	Amount of Assurance.
			Years	Mo.		
1845	By Cash Twenty Pounds	£ 20	20		By Fifty-three Pounds 3s. 4d.	£ s. d. 53 3 4
1850	By Cash Fifteen Pounds	15	25		By Thirty-six Pounds 12s. 6d.	36 12 6
1855	By Cash Twenty-five Pounds	25	30		By Fifty-six Pounds 2s. 11d.	56 2 11
1860	By Cash Twenty Pounds	20	35		By Forty-one Pounds 10s. 0d.	41 10 0
1865	By Cash Twenty Pounds	20	40		By Thirty-eight Pounds 3s. 4d.	38 3 4
		100				225 12 1
1875	To Cash	25	50		To Forty-three Pounds 8s. 0d.	43 8 0
		£75				£ 182 4 1

The reading of which is, that the insured being 20 years of age deposits £20, which is treated by the Co. as the single prem. for an insurance of £53 3s. 4d; and so on for each other deposit. In 1865 he stands

insured for £225 12s. 1d.; but in 1875 he draws £25 of cash, and so reduces the amount insured by £43 8s.—being the amount which a single prem. of £25 would purchase at age 50. Suppose the account carried on to age 60, without further paying in or withdrawing, and that it is then closed. The bal. of £75 cash represents an ins. for £182 4s. 1d. The present value of this sum at age 60 is £124 2s. 2d.; that is the amount the depositor will receive.

The annexed T. was given to show the amount of ins. which each £100 deposited with the Co. would secure at any age from 15 to 55:

[Note.—The assurance values are shown above as at each completed year of age. The Co.'s extended T. on which they transact bus. show the values at the intermediate months of each year.]

Age last Birthday.	Assurance value of £100 deposited.	Age last Birthday.	Assurance value of £100 deposited.
15	£287 18 4	36	£204 3 4
16	282 18 4	37	200 16 8
17	278 15 0	38	197 10 0
18	274 11 8	39	194 3 4
19	270 0 0	40	190 16 8
20	265 16 8	41	188 6 8
21	261 5 0	42	185 8 4
22	257 1 8	43	182 10 0
23	252 18 4	44	180 0 0
24	248 15 0	45	177 1 8
25	244 3 4	46	174 11 8
26	240 0 0	47	171 13 4
27	235 16 8	48	168 15 0
28	231 13 4	49	165 8 4
29	227 18 4	50	162 10 0
30	224 11 8	51	159 11 8
31	221 5 0	52	156 5 0
32	217 18 4	53	153 15 0
33	214 11 8	54	150 8 4
34	210 16 8	55	147 18 4
35	207 10 0		

The following is the form of policy under which the contract was carried out.

No. —
Party assured
born —

The United Deposit Assu. Co.

Class —
Age at entry.

Whereas — has proposed to effect assu. with the *United*, etc., on his own life for the remaining term thereof. And whereas the said . . . subscribed or caused to be subs. and lodged at the office of the said Co. a declaration dated the . . . day of . . . 184—, and which declaration is also signed by the man. of the said Co. as relative hereto.

Be it therefore known to all men by these presents that the said *United Deposit Assu. Co.* and cap. stock and funds thereof, are subject and liable to pay, and are hereby charged with payment to the heirs, executors or assigns of the said . . . of such a sum not exceeding £ — as shall be ascertained at his death to have been assured by the said Co., and remaining due under this pol., as the same

shall be vouched and appear in the schedule hereunto annexed under the hand of the man, or of any one of the ordinary directors of the said Co., or of the agent in . . . for the said Co., all for the time being, and which sum or sums of money not exceeding £— so ascertained as assured under this pol., shall be payable by the said Co. after the death of the said . . ., subject always to the conditions printed on the back of this pol., and which conditions are specially referred to and held as engrossed herein: the said Co. being bound in terms of their contract of co-partnership, to make the whole or any part of the current value of the assu. granted as hereafter written available to the said . . . or his assigns during the life of the said . . . at such rates and in such way and manner, and subject to such regulations, as may from time to time be appointed by the ordinary directors of the said Co.

In witness whereof, etc.

Then follows the schedule in the form already given, but with add. cols. for reference to fo. of cash book and ledger of the co. The only condition on the back of the pol. which requires to be reproduced is the following :

V. The directors of the Co. are bound, in terms of the Co.'s contract of co-partnership, to make the whole or any part of the current value of the assu. granted under this pol. available to the person having right to the same during the subsistence of the life of the person assured, at such rates, and in such way and manner, and subject to such regulations, as the ordinary directors of the Co. may from time to time appoint. Accordingly, in terms of regulations laid down by the ordinary directors of the Co., if the person having right to the assu. granted under this pol. is desirous to have the current value of such assu. made available to him, in whole or in part, such person may receive from the Co., at their office in Edinburgh, such value in whole or in part; said value being calculated according to the same T. of Mort., and at the same rate of int., as the assu. value of any sum or sums paid to the Co. for assu. under this pol., shall have been calculated.

The reason for quoting a maximum sum in the pol., and limiting the pol. to it, was no doubt in view of the stamp duties. When the ins. purchased by the sums in deposit exceeded the limit of any given pol., a new and add. pol. would be issued.

In the same year the *City of Glasgow* Life founded a branch for Deposit Ins. under an arrangement with the *United Deposit Co.*, and with Mr. Borthwick. The Co. did not continue the plan.

In the same year, 1845, the *City of Lond.* Ins. Co. founded a branch for Deposit Ins., which it called "Accumulative Assu." The scheme was prepared by the late Mr. Rainbow, and had very attractive features. It is essentially a plan of Deposit Ins. The prosp. pub. by the Co. furnishes the following outline :

By the new plan, the prem. may be varied in amount in each year, to suit the convenience of the party assured, or, after one or any greater number of payments, it may altogether cease; and not only will the assured not lose the benefit of what he may have heretofore paid, but he will be allowed, on giving due notice, to withdraw the whole, or any part of the amount so paid, together with the increased value which the pol. may have acquired, by a part. in the profits of the Co., which, at every period of division, will be given in strict proportion to the then existing interest of the party assured.

Upon the first payment, a capital sum equivalent to the amount paid, according to the age of the life at the time of payment, is guaranteed on the failure of the life assured; and upon each succeeding payment, a further sum is in like manner guaranteed and added to the former: and thus the assu. becomes, as its title imports, "Accumulative." Taking, for example, the life before instanced, aged 20, paying a like prem. of £20, the result would be as follows, viz. on payment of the first prem., he would be assured for £48 *ts. 6d.* during the 2nd year; on renewing the prem., the amount would be £95 *11s.*; in the 3rd year, £142 *8s. 4d.*; in the 4th year, £188 *13s. 8d.*; in the 5th year, £234 *7s. 1d.*; and so on, increasing with each successive prem. to the utmost limit of his term of life. The accumulative assu. would be, at the end of 20 years, £884; of 30 years, £1236; of 40 years, £1500; of 50 years, £1737; while, if at any time the prem. should remain unpaid, the only consequence would be that the sum then assured would remain unaltered, or the prem. paid would be returned; that is to say, if the prem. were discontinued at the end of 20 years, £884, or 40 years, £1500, would remain the sum assured, without any further call in either case for prem.; or should any circumstance arise to render a continuance of the pol. unnecessary or undesirable, *the whole of the prem., without deduction,* would be returned to the assured, together with the increase in value before alluded to.

The following T. shows the accumulated sum which might be insured by paying £10 ann. from age 7 up to 60.

Age.	Accumulated Assurance.	Age.	Accumulated Assurance.	Age.	Accumulated Assurance.	Age.	Accumulated Assurance.
	£ s. d.		£ s. d.		£ s. d.		£ s. d.
7	27 2 0	21	385 15 9	35	686 11 1	48	914 18 10
8	54 4 10	22	409 4 5	36	705 16 5	49	930 12 3
9	81 5 9	23	432 7 1	37	724 15 10	50	946 0 9
10	108 5 5	24	455 3 9	38	743 9 6	51	961 4 4
11	134 19 5	25	477 14 5	39	761 17 5	52	976 4 3
12	161 7 8	26	499 19 0	40	779 19 8	53	990 18 7
13	187 10 1	27	521 17 6	41	797 17 3	54	1005 8 4
14	213 6 8	28	543 10 1	42	815 8 1	55	1019 13 9
15	238 17 2	29	564 16 7	43	832 13 5	56	1033 14 10
16	264 1 11	30	585 17 2	44	849 13 2	57	1047 11 10
17	289 0 8	31	606 11 9	45	866 7 9	58	1061 4 10
18	313 13 6	32	627 0 5	46	882 16 8	59	1074 13 10
19	338 0 3	33	647 3 3	47	899 0 3	60	1087 19 0
20	362 1 0	34	667 0 2				

The average amount insured during the term will be found to be £584. The Co. required no renewal of medical certificate of health except upon the occasion of an

increase of the amount of prem. beyond any previous year. We believe very little bus. was done in this branch.

The *London and Provincial Joint-Stock Life*, 1847, had a Deposit Ins. branch, but it presented no feature calling for especial remark.

In the *Bankers' Mag.* Sept. 1845, there appeared a very well-written art. on the subject of Deposit Ins., explaining its principles and commending its practice.

In 1851 Mr. F. G. P. Neison pub. *Statements and Tables illustrative of the system of Deposit Ins.*, and which T. were incorp. into the scheme of the *Deposit and General*, of which we have next to speak.

In 1852 was founded the *Deposit and General L. Assu. Co.*, of which we have already given a general hist. Its features differ very materially from those of the *United Deposit*, already passed in review. The plan was extended to Deferred Annu. The following are abstracts of the two principal T. under which the Co. worked :

TABLE showing the sum payable at death for deposits of £1, and also the sum which may be withdrawn or borrowed at int. by the assured at the end of a given number of years.

Age when the Deposit is made.	A Deposit of £1					
	Will assure at Death.			Sum which may be borrowed or withdrawn at the end of the		
				5th Year.	10th Year.	
	£	s.	d.	£	s.	d.
10	3	7	2	1	1	3
15	3	2	4	1	1	5
20	2	17	4	1	1	2
25	2	13	3	1	1	2
30	2	9	6	1	1	3
35	2	5	10	1	1	4
40	2	2	3	1	1	5
45	1	18	11	1	1	5
50	1	15	6	1	1	5
55	1	12	11	1	1	4
60	1	10	4	1	1	3
65	1	8	1	1	1	2
70	1	6	3	1	1	0

For deposits made at intermediate ages, corresponding amounts will be paid at death, or may be withdrawn.

the whole or a portion of the amount paid in, together with savings bank interest thereon. Example:—A. B., aged 20, deposits a sum of £50, for which a pol. payable at death is granted for £139 2s. In 5 years the assured has occasion to withdraw or borrow the whole amount paid in, whereupon the So. will repay the sum of £53 2s. and cancel the pol., or lend at int. a like sum, keeping the assu. still in force.

Dr. Farr says, in 12th Rep. of Reg.-Gen., pub. 1853 :

As insurances were originally effected to a large extent in connexion with loans, the sum insured was chiefly considered ; but in proportion as they become a form of savings, the prem. will be of the first importance, and a man will be inclined to set aside £1 or several pounds, in proportion to his means, rather than to fix beforehand on an even sum at which he will insure his life.

In 1853 the *Life Assurance Treasury* was founded. Its scheme was that of Deposit Ins.; deposits as low as 5s. being accepted. Mr. Tobiah Pepper was its Act. We do not observe any feature requiring special comment.

In the Ins. scheme proposed to the Gov. by Dr. Farr, in or about 1858, a system of Deposit Ins. was contemplated, but on a somewhat more extended scale than it is usually applied :

The office will receive uniform ann. deposits, and engage to pay the accumulated amount at the end of 5, 10, 15, 20, 25, 30 years, or at the death of the depositor, if it happen within the stipulated time. The amounts created by ann. prem. of £110, including £10 to the guar. fund, are shown in the T. Thus, a person who commences payment at the age of 20 of an ann. prem. of £110 a year, and continues the payment for as many of the subsequent 15 years as he lives, is entitled to £1758 at the end of that term, or his representatives can obtain it earlier if his death happen before the term has expired. He is sure to obtain or leave behind him the sum named.

This fund enables a parent to provide endowments for his children. He has only to commence the annu. deposits at or after marriage, and if he lives, to continue them for a sufficient length of time, in order to accumulate a sum at his disposal when his sons and daughters enter professions and settle in life. In the event of his premature death, the sum goes to his heirs, or is distributed as it is disposed of by his will.

This fund enables a person also to accumulate money for the purchase of any property in a given number of years. It enables a person in debt to free himself from his incumbrances in a given number

TABLE showing the deferred annu. that might be secured at a given age for every deposit of £10, the whole of the deposits made to be at any time withdrawn at the option of the depositor, or to be returned in the event of death before the annu. commenced.

Age when the Deposit is made.	Age when the Annuity is to commence.														
	50			55			60			65			70		
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.
20	1	19	5	2	15	4	4	1	10	6	10	1	11	9	6
25	1	12	11	2	5	11	3	7	5	6	6	5	9	6	3
30	1	7	6	1	18	1	2	15	6	6	11	7	10	7	
35				1	11	8	1	2	5	9	3	10	6	1	4
40							1	17	9	2	17	9	4	17	6
45										2	7	7	3	18	1
50													3	2	5

The *Ark Indisputable Mutual Ins. Asso.*, 1852, had a Deposit Ins. branch, called "Savings Bank and L. Assu. Department," the short features of which were set out as follows :

Assu. payable at death, or deferred annu. are granted by the So. on payment of any sum of money, without being chargeable with further prem., and with power to the assured to withdraw or borrow at any time

of years, or at his death. It will be of great assistance to persons in professions and trade, and to all persons who have fixed salaries and life incomes.

The depositor can discontinue the ann. prem., and withdraw the amount in deposit before the term has expired; his life ceasing then to be insured.

The *Diadem L.*, 1854, had a deposit ins. branch.

In the Government scheme of L. Ins. which came into force in 1864, the deposit feature is embodied. We shall give a full outline of its features under GOV. INS.

Mr. Scratchley, in his *Treatise on Benefit Building Soss. and L. Assu. Soss.*, etc., 1867, offers the following obs. on Deposit Ins.:

To suit the convenience of parties whose incomes are liable to change, a system termed the Deposit or Accumulative system is adopted by several offices, by which a pol. of ins. can be obtained commensurate with the number and amount of the deposits made, with the add. advantage to the insured of being permitted to withdraw at any time, after a few weeks' notice, the whole or part of the money deposited. Thus so long as the money or any part of it remains deposited with the so., it produces a corresponding ins. effected on the life of the depositor, and entitles his family at his death to a sum of money varying with the age at which the deposit was made. The peculiar advantages offered by this accumulative mode of ins. are found to be applicable to an infinite variety of cases. For example: parents and guardians may make provision either for present wants of children, or for the purpose of recovering, in the event of their premature decease, all charges incurred for their education and advancement in life. Thus let a parent determine to lay by £50 p.a. for the benefit of a child now 10 years of age, and to expend £75 p.a. on his education and entrance into life. By effecting an accumulative ins. the case would stand thus: £50 is immediately deposited for the ins., while the £75 is devoted to the purpose of education. If death should occur in the first year, the co. would pay £140—the sum the £50 would have secured on a child aged 10—which would restore more than both prem. and cost for education. On the payment of subsequent deposit of £50, the sum ins. in the 2nd year would become £279 5s., and each successive year the sum would increase as follows:

In the 3rd year it would be	£417	3	11	In the 8th year it would be	£1092	6	5		
" 4th "	"	£554	0	5	" 9th "	"	£1222	19	3
" 5th "	"	£690	2	2	" 10th "	"	£1351	14	7
" 6th "	"	£825	13	5	" 11th "	"	£1478	10	10
" 7th "	"	£959	18	4					

—showing that, in any interval from ten to twenty-one, there would have been the repayment, in the event of the child's death, of an amount exceeding *the whole of the premss.* and charges for education; and in the event of his living, either the refunding of all the premss. paid, £550, as a capital wherewith to engage in business, or the guarantee of an ins. of £1478 10s. 10d., increasing with every succeeding prem. if paid, and by bonus divisions if in a sound office.

He further shows that the deposit plan is capable of a variety of modifications, according to the life contingency it is desired to meet:

One extension of considerable importance is the payment to the depositor himself during his lifetime of a portion of the current interest on the money deposited, with the further advantage of a pol. of assu. of lesser amount secured payable to his family at his death. Another modification of the system not at present practised would consist in the allowing the assured to keep up the difference between the amount of his pol. at time of withdrawal, and the sum deposited by the ann. prem. payment which would have been charged when he entered.

The *Emperor L.* in 1871 devised a scheme of Deposit Ins. with some new and attractive features. [EMPEROR LIFE.]

This system of ins. was revived in the U.S. in 1871, with some modifications, under the title of SAVINGS BANK LIFE INS.

DEPOSIT MONEY.—It was in early times the practice for Life Ins. Asso. to require persons proposing to insure to deposit a certain sum of money, varying generally with the amount insured. This deposit money was prob. first designed in view of securing good faith on the part of persons proposing, or, as the offices put it, of preventing unnecessary trouble. If they did not complete after proposing, it was forfeited; if they did not pass, it was probably in the first instance applied in discharge of the cost of medical examination. In later times it was in such cases returned. If the life were accepted, and the transaction completed, credit was given for the deposit money.

The custom began to die out with the competition which was engendered early in the present century. Mr. Babbage, in his *Comparative View*, pub. in 1826, gives the following list of offices still requiring the Deposit, taking care to mention that the offices not included in his enumeration did not do so:—Alliance, 5s. if under £250; 2s. above.—Amicable, 2s. 6d. for each £100 proposed.—British Commercial, 5s. if under £100; 10s. if under £500; £1 if under £1000; £1 for every add. £1000.—Hope, 2s. 6d. for each £100.—Law Life, 21s. in every case.—London Life, 21s. in every case.—Provident, 2s. 6d. per £100.—Rock, 5s. if under £100; 10s. 6d. if under £500, and 21s. under £1000.

All these offices have long since abandoned the practice. [ENTRANCE MONEY.]

[FINE FOR NON-APPEARANCE.]

DEPOSIT NOTES.—These, in the ordinary acceptance of the term in Gt. Brit., simply mean notes given by cos. receiving deposits of money, and wherein the conditions of the loan as to repayment, rate of int., etc., are set forth. In the U.S. they have a very different signification.

It became the custom some years since—and the practice has not entirely died out—to estab. Mut. F. Ins. Asso. in the smaller towns and villages of the different States. The promoters of these asso. could only obtain the required legislative authority on condition that a certain cap. should be raised to constitute an ins. fund. The ingenious expedient was devised of raising this cap. by means of Deposit Notes. Each of the founders gives his note for a pro-rata sum. Any profits resulting from the bus. are applied to the liq. of these notes. If cash be required for the purposes of the bus., a pro-rata call is made upon the notes: the member being liable for the whole amount of any note given on cap. account.

Again, the pol.-holders are frequently allowed to pay their prem. part in cash, part in deposit note, on a pro-rata principle. These notes again become liquidated or brought into play as the fortunes of the asso. may turn.

This is but a modification of the *Mut. Contribution* plan, upon which many of the early English F. offices were founded. The system, as adopted in the U.S., has given rise to considerable litigation; but the principles which govern these notes are now well understood.

The system of Deposit Notes has also been applied to L. Ins. Seeing the large returns of prem. by way of ann. dividend [bonus] many of the offices were making, the pol.-holders said, "It is no use to pay so much cash in the beginning of the year, only to receive it back again at the end of the year. Estimate your prob. return: we will give you a note for that, and cash for the balance. If the profits of the year redeem our note, all right; if not, we will pay the difference, and redeem our note when the next year's prem. falls due." This method was very largely practised in the U.S. for several years, and became popularly known as the "note plan." The system, while it has a great show of reason in its favour, has however one very fatal objection. In a co. with a rapidly increasing new bus., a very large amount of its assets would consist of these notes. Where the pol. were not renewed, the notes in practice could not be collected; but so long as the notes were not cancelled, they were treated as assets of the co. The State Ins. Superintendents found a difficulty in estimating such assets. There was always the possibility of fraud or concealment, not only by the officers of the co. as against the Ins. Department, but of the agents of the co. as against the co. itself. These difficulties were seen and admitted on all sides; and within the last few years the note system may be said to have been practically abandoned, certainly by the leading offices, and the "cash plan" is again in general use. The distribution of the surplus being ann. in the U.S., so that every pol.-holder may set off the div. of the last against the prem. of the next year—an excellent system—but very little inconvenience has been incurred by the change; while the solidity of the offices is much increased.

The law of Deposit Notes and of assessments upon them is clearly and concisely defined by Mr. Flanders, in his *Treatise on the Law of F. Ins.*, 1871.

DEPOSIT OF POLICY.—The deposit of a pol. of ins. differs from an assignment of a pol. An assignment is a recognized, and completed, legal act. A deposit may mean very much or very little, and must be governed by the intention of the parties at the time of deposit, so far as the same can be ascertained. The deposit of a pol. as against an advance of money gives an equitable lien as well for subsequent as the orig. advance. The mere possession of a pol. conveys no right to the moneys receivable thereunder, in the absence of sufficient proof of interest.

DEPOSIT RECEIPT [*ad interim* receipt].—When a person seeking ins. hands in a proposal to an ins. office, or to an agent, it is usual in most branches of ins., other than life, that a payment on account of prem., technically called a "deposit," be made by such person. The acknowledgment for this preliminary payment is called a "Deposit Receipt," and it states briefly that such deposit has been paid, and undertakes within a certain number of days (usually 28) either to tender a completed pol., or to return such deposit. The proposer is usually held insured during the period specified in such receipt, unless the contrary be distinctly stipulated. By means of these receipts, and the interim protection thus afforded, time is obtained for proper inspection, surveys, etc.

By the Stamp Act of 1865 a penny stamp was required to be affixed to such receipts. We do not discover anything upon the subject in the Act of 1870.

There was a case some few years ago, of which we have not the exact reference (we believe it occurred in the U.S.), where a F. ins. risk had been accepted by an agent, the prem. paid, and a receipt given therefor, subject to the approval of the co. to be certified within 21 days. If approved, the pol. was to be delivered; if not approved, the money was to be returned, less the prem. for the time insured. This was held not to be an absolute ins. for 21 days certain, but that the co. might within that period reject the risk, and give notice of such rejection, after which their liability would cease upon return of the unearned prem. [PROTECTION NOTE.] [TAKE NOTE.]

DEPOSITOR.—One who makes a deposit.

DEPOSITS, STATE.—See STATE DEPOSITS.

DEPRECIATION OF VALUE.—Questions as to depreciation in the value of merchandise frequently arise in the adjustment of fire losses. It will be more convenient to speak of these under FIRE LOSSES, ADJUSTMENT OF.

DEPURATION (from *depuro*, to cleanse).—The process of cleansing the body from impurities.

DERELICT.—A vessel forsaken at sea.

DERHAM, WILLIAM, pub. in 1713 *Physico-Theology*, a work which passed through many eds., wherein he discourses of births, principles of pop., etc., etc.

In 1726-7 he pub. *Miscellanea Curiosa: a collection of the principal phenomena in nature, accounted for by the greatest philosophers of this age*. [Discourses before the Royal Society, etc.]

At page 280 of this work is a reprint of Dr. Halley's celebrated paper on the mort. of the city of Breslau, with an attempt to ascertain the price of annu. upon lives.

DERMATOSIS (from the Greek).—A general term for diseases of the skin.

DEROGATION.—The act of weakening or restraining a former law or contract.

DERRICKS.—Lofty, portable, crane-like structures, used on land and water for lifting enormous loads. Floating derricks for raising sunken vessels were introduced into England (from the U.S.) in 1857, by their inventor, Mr. A. D. Bishop.

DESBOROUGH, HENRY, late Sec. of *Atlas F.* and *L.*—Mr. Desborough as a junior entered the *Phoenix F.* on the Lord Mayor's Day, 1800. On the estab. of the *Globe* in 1803 he became Chief Clerk in that office, being then under 19. On the estab. of the *Atlas* in 1808, he was appointed its Sec., which position he occupied down to the end of 1858, or a full period of half a century, when he retired. Early in the following year a complimentary dinner was given to him, at which the managers of all the principal F. offices and of many of the L. cos. were present. In his speech on that occasion a most interesting account was given of his own official career; while many pleasing allusions were made to other prominent ins. officials who have long since passed away. Mr. Desborough had much to do with founding the fortunes of the *Atlas*, which in early days had to pass through some of the struggles incident to young offices. He was also instrumental in the formation of the Lond. fire engine estab. He died in 1862, aged 78 years.

DESCENT.—One of the two chief methods of acquiring an estate in lands. It is the hereditary succession of property vested in a person by the operation of law, *i.e.* by his right of representation as heir-at-law. It is defined in the interpretation clause of 3 & 4 Wm. IV. c. 106 (1833), as "the title to inherit lands by reason of consanguinity, as well where the heir shall be an ancestor or collateral relation, as where he shall be a child or other issue."

DESCRIPTION OF PROPERTY INSURED.—In F. Ins., as indeed in Carriage Ins., Glass Ins., Steam Boiler Ins., etc., the proposer is called upon to furnish to the office, mostly on forms provided for the purpose, a description of the property offered for ins. This description, says Mr. Bunyon, in his *Law of Fire Ins.* [of course writing in view of F. ins. contracts alone, but the principles apply to contracts in other branches of ins.],—this description, including by implication both the construction and use of the premises insured, is at the root of the contract. It is, in the first place, important for the identification of the property, and showing what was intended to be covered by the pol. Secondly, as evincing the good faith of the assured, in the communication of all material facts, and thereby enabling the insurers to estimate the risk, and adjust the rate of prem. accordingly. Thirdly, as proving the risk proposed and intended to be incurred by the insurers, thereby limiting their liability; and, lastly, as containing, which it may do, warranties or conditions which must be literally complied with. Mr. Bunyon remarks further:

The offices, as is well known, fix their rates of prem. according to their estimate of the hazard attending the ins. of the particular property; in determining their rates they are governed by their own experience, which may or may not be a fair criterion. It would be very unjust that the validity of the ins. should depend on the sufficiency of the prem. charged, or that the insurers should evade responsibility by reason of their having chosen to issue a pol. at a low or presumably inadequate rate; but, on the other hand, it would be equally unfair to them to hold them to a bargain into which they had been drawn by concealment or misrepresentation, whether fraudulent or not, for a consideration which they would have deemed inadequate, and would have rejected had the true facts been stated; and when it is manifest to the insured that the consideration would vary according to the nature of his property.

When the description takes the form of a warranty, it must, in order to sustain the contract, be strictly and literally true; but when no express warranty is infringed, the Court will look to the substance of the contract, and uphold it when the description is substantially correct.

Now, nearly all fire pol., and many of those insuring other descriptions of property, provide that in the event of any alteration of premises, or change in the nature of the risk by occupation or otherwise, notice shall be given to the office—for the purpose, of course, of enabling a new assessment of rates to be made by the office in view of such change in the risk.

These points may be best illustrated by reviewing a few of the cases which have arisen in actual practice, and which have come for determination before the Law Courts here and in the U.S.

In the case of *Watchorn v. Langford* and others, 1813, the *Eagle* Ins. Co. had granted to the plaintiff, a coach-plater and cow-keeper, a pol. on his "stock-in-trade, household furniture, linen, wearing apparel, and plate." A fire happened on the plaintiff's premises, and consumed, amongst other things, a large stock of linen drapery goods, which a short time before he had purchased on speculation. The plaintiff claimed for these goods, which it was contended were protected by the pol. under the denomination of "linen." Lord Ellenborough said, "I am clearly of opinion that the word 'linen' in the pol. does not include articles of this description. Here we may apply *noscitur à sociis*. The preceding words are 'household furniture' and the succeeding 'wearing apparel.' The 'linen' must be 'household linen or apparel.'"

In the case of *Newcastle F. Ins. Co. v. MacMorran*, decided in the House of Lords in 1815, a cotton mill had been ins., and the pol., after the description of the property, contained the following clause: "Warranted that the above mill is conformable to the first

class of cotton and woollen mill rates delivered herewith." The first class comprised buildings containing, among other things, "stoves not having more than two feet of pipe leading therefrom into the chimney." The second-class buildings having stoves with more than two feet of pipe. The mill contained a stove with more than two feet of pipe, and the pol. was held void. The claimants endeavoured to show that there was no greater risk in a second than in a first-class mill; but Lord Eldon remarked, "If the Court of Session was of opinion that the danger and risk were not greater in mills of the second than of the first class, or though that was sworn to by 500 witnesses, it would signify nothing; the only question is, what is the building, *de facto*, which I have insured?"

In *Scott v. Quebec F. Ins. Co.*, 1821, it was stated in the pol. that the dwelling-house of insured was "built of stone, and covered with tin, gables through the roof and plafond, iron doors and shutters." The fire destroying the building began in an adjoining house, and spread from thence to a wooden building on the premises of the insured, from which it was communicated through a doorway of the dwelling-house, which was open, although it had an iron door, to the interior of the last-mentioned edifice:—*Held*, that the description, iron "shutters and doors," whether regarded as a representation or warranty, was substantially true, and did not include by implication the duty of keeping them closed. *Held*, further, that the fact of their being open in the middle of August at 8½ P.M. was no proof of negligence.

In the case of *Dobson v. Sotheby*, 1827, some timber-built agricultural buildings had been ins. under the inaccurate description of a barn, but at the same rate of prem. as would have been charged by the office had they been accurately described. They were burnt down in the operation of heating some tar to repair them. It was *held*, that the office was responsible for the loss.

In *Columbian Ins. Co. v. Lawrence*, 1829, a rule annexed to the pol. stated that persons desirous of making ins. on buildings should state in writing the following particulars, to wit: "of what materials the walls and roofs each are constructed," etc.; "and if any person shall cause the same to be described in the pol. otherwise than as they really are, so as the same be charged at a lower prem. than would otherwise be demanded, such ins. shall be of no force:"—*Held*, that a misdescription would not avoid the pol. unless a lower rate of prem. was charged in consequence of it; and whether such misdescription reduced the prem. which would otherwise have been demanded, was a question of fact which the jury alone could decide [2 Pet. U.S. 25.]

In the case of *Friedlander v. Lond. Assu. Corp.*, 1832, goods insured were described as being in the dwelling-house of the insured. The insured had only one room as a lodger, in which the goods were:—*Held*, to be correctly described, within the condition that "the houses, buildings, or other places where goods are deposited and kept shall be truly and accurately described,"—such condition relating to the construction of a house, and not to the interest of the parties residing in it.

In the case of *Shaw v. Robberds*, 1837, the facts were as follow:—The plaintiff insured his premises in the *Norwich Union* Office by the description of a granary, etc., and "a kiln for drying corn in use" communicating therewith. By the conditions the pol. was to be forfeited unless the buildings were accurately described, and the trades carried on therein specified; and if any alteration were made in the buildings, or the risk of fire increased, the alteration, etc., was to be notified, and allowed by indorsement on the pol.; otherwise the ins. to be void. The plaintiff carried on no trade in the kiln except drying corn; but a vessel laden with bark having been sunk in the river near the kiln, the insured allowed it to be dried gratuitously in the kiln, and this occasioned a fire, by which the premises were destroyed on the third day after the drying of the bark commenced. It was proved in evidence that drying bark was a distinct trade from drying corn, and more hazardous: the ins. offices charging a higher prem. for bark kilns than for corn kilns:—*Held*, that the insured was not precluded from recovering, either on the ground of an alteration of risk, or (in the absence of fraud) because the fire arose from his negligence. It might be a question for the jury if the drying the bark had been undertaken for profit.

In the case of *Pim v. Reid*, 1843, the ins. was in the *Imperial* upon the machinery and fixtures of a paper-maker. The defendants pleaded that the insured had, after the issue of the pol., permitted another person to carry on upon the premises the trade of a cleaner and dyer of cotton waste, for the purpose of making cotton wadding, and had introduced large quantities of cotton waste upon the premises. It was shown in evidence that the manufacture of cotton wadding was much more hazardous than that of paper, and that cotton waste was liable to spontaneous combustion; but was, it was admitted, exclusively used in the manufacture of paper. The pol. contained a condition for the correct description of the property to be insured; and that "if the assured should misrepresent or omit to communicate any circumstance which should be material to be known to the Co., to enable them to judge of the risk which they had undertaken, or were required to undertake, such ins. shall be of no force." Also another condition to this effect: "In the ins. of premises which contain any steam engine or other implement by which heat is produced (common fireplaces excepted), the construction and circumstances must be particularly described at the time of effecting the ins., or, if subsequently introduced, due notice must be given to the Co., and the same allowed by them; otherwise the

pol. will be void." There was no other condition requiring the notice and allowance of alterations materially affecting the risk.

The Court considered that the first condition only related to the premises at the time of ins., and did not reach any subsequent alterations. The change in the risk was not reached by the second condition quoted. It was further held upon general principles, that an alteration, without fraud, by the introduction of the more hazardous trade, did not avoid the pol.; but that the Co. must in such a case pay the loss, unless they chose to provide for it by an appropriate condition.

This case was regarded as an authority upon the point for some time; but the F. Offices gradually altered their conditions in the direction needed; and then came the decision in *Sillem v. Thornton*, presently to be noted, which showed that the offices had succeeded in moulding their conditions into the right form to meet such difficulties.

In *Hare v. Barstow*, 1844, the pol., in the *Yorkshire F.*, mentioned a building, oil-mill, of one floor only, stone and tile, occupied by —, for crushing of linseed and grinding of dyewood, but no refining oil therein, £1000; on fixed machinery and millwrights' works, including all the standing and going gear therein, £1000; one engine-house adjoining the mill, £200; one steam engine therein, £300; one logwood warehouse, in which chopping dye-wood is performed, communicating with the mill, £200; one warehouse on the other side of the mill, to the east side, merely for the storing of goods, £300:—*Held*, that there was no ambiguity in the pol., and that evidence was not receivable to show that it was intended to insure the machinery and gear in the logwood warehouse.

In *Barrett v. Jermy*, 1849, the plaintiffs were insured, in the *Norwich Union*, as varnish and colour makers. The following conditions were contained in the pol.:

Thirdly.—That the pol. shall be void unless the nature and material structure of the buildings and property insured are fully and accurately described, and the trades carried on therein correctly shown; and unless it is stated whether any hazardous goods are deposited, and whether there is any stove or apparatus for producing heat other than common fireplaces.

Fourthly.—If any alteration or addition be made in or to any building insured, or in which any ins. property is contained, by which the risk of fire may be increased, or if such risk is increased, either by any means adverted to in the third condition, or in any other manner, or if any property insured be removed into any other premises, such alteration, or addition, or increase of risk, or removal, must be immediately notified to the Co., in order to its being allowed on the pol.; otherwise this pol. will be void.

The ins. was made in March, 1846. At that time there were two boilers in the open yard (adjoining a building marked No. 7 on the plan) used for boiling oil. In May, 1846, the plaintiffs removed these two boilers from the yard to the inside of building No. 7. In May, 1847, a fire broke out in that room during the time that varnish was being heated in the oil boilers, by which much damage was done to the building and to the stock-in-trade and movable utensils. The plaintiffs alleged that they had sent notice of the alterations to the office, and that one of the officers of the Co. had inspected them. The jury found for the defendants on all the issues. A new trial was granted, on the ground of misdirection of the Judge; but the case never came before the Courts again.

In *Casey v. Goldsmid*, 1852, the pol. described the premises as a house, bounded in rear by a stone building covered with tin, and by a yard: in which yard there was being erected a first-class store, which would communicate with the building ins.:—*Held*, to be incorrect, and therefore null, it being proved that there was between the house and the stone building a brick building covered with shingles, communicating to both by doors. On appeal (1854), this was reversed, and judgment given for the insured, on the ground that the omission to mention such doors in the description was not proved to have been a fraudulent concealment; and inasmuch as it was not estab. that the fire had been occasioned and had extended by means of such apertures. [4 Lower Canada, Q.B., Appeal side, 107.]

In *Perry Ins. Co. v. Stewart*, 1852, the description of the building to be insured was made by an agent of the Co., who gave a written description of the property to the Co., including a kitchen which applicant intended to build, and which was built after issue of pol. and before the fire:—*Held*, that if objection be taken by the Co. that the description of the kitchen building was erroneous, the insured may show by verbal testimony that it was in contemplation at the time of making the pol., and was therefore included in it, and may recover for the loss of it; and if it appear by the evidence that the add. building did not conform to the intention of the insured, as communicated to the agent of the Co. at the time of application, the variation would not of itself avoid the pol. It stands upon the principles of an alteration, and avoids the pol. only in case the risk is thereby increased, which is a question of fact to be determined by the jury. [19 Penn. St. 45.]

In *Glen v. Lewis*, 1853, the plaintiff, a cabinet-maker in Hull, effected an ins., in the *West of England*, upon his business premises. At the foot of the pol. a "description of risks and terms of ins." was given in several classes. In class 4, described as "specially hazardous," cabinet-makers were included; also "and any other risks of more than ordinary hazard, by reason of any steam engine, stove, kiln, furnace, oven, or other fire heat, used in the process of any manufacture." The first condition indorsed on the pol.—after requiring the insured to give an accurate description of the buildings, erections, etc.,

intended to be insured, according to the description of risks above stated, and providing that if the ins. was upon stock-in-trade, the nature of the same and of the buildings in which it was deposited should be truly described—proceeded as follows :

And if in the buildings insured, or containing any property insured, shall be used any steam engine, stove, kiln, furnace, oven, or if any description of heat other than common fireplaces in private houses, or any process of fire heat be carried on therein, the same must be noticed and allowed in the pol.; and if any omission or misrepresentation take place on any of the foregoing or any other material point, the pol. is void and the ins. of no effect. Every ins. attended with particular circumstances of risk must be so specially expressed in the pol.; and in case of any circumstance happening after the ins. has been effected, whereby the risk shall in any way be increased, the insured is required to give notice thereof in writing to the Co., and the same must, previous to a loss occurring, be allowed by indorsement on the pol.; otherwise the pol. is void, and all title to any benefit from the ins. becomes forfeited.

The fourth condition related to any alteration of the premises with regard to heating.

The plaintiff after ins. became desirous of trying whether a small steam engine which he had seen in a broker's shop would be useful in his trade. It was thereupon introduced to his premises, and tried two or three times. On the last of which occasions the fire occurred :—*Held*, that the introduction of a steam engine on the insured premises, with the view merely of trying by way of experiment whether it would be of use in the bus. of the insured, was a breach of the condition.

Mr. Baron Parke, in delivering the judgment of the Court, observed :

As nothing is said about the intention of the parties as to the particular use, and as, if it were used, the danger would be precisely the same, whatever were the object with which it were used, it seems to us that it makes no difference, whether it was used merely on trial or as an improved means of carrying on the plaintiff's bus. Nor do we think that it makes any difference whether the engine was used for a longer or shorter term. The terms of the conditions apply to the introduction of a steam engine at any time without giving notice to the Co., so as to afford them the opportunity of inquiring whether the introduction will increase the risk or not. In all cases where alterations are made, which it is known will unquestionably increase the risk, the Co. makes this stipulation in order that they may consider whether they will continue their liabilities or not, and if so, upon what terms.

In the case of *Sillem v. Thornton*, heard in the Queen's Bench, in 1854, the circumstances were as follow :—A building described as “of two stories, without a basement story,” was increased after the grant of the pol. by the add. of a third story; and it was *held* that the risk was increased by such add. and the pol. vacated. The judgment was that of the Full Court; and two or three passages of the judgment require special note. The Court considered that under the particular pol. in question, “the description amounted to a warranty that the premises corresponded with it,” and also “to a warranty that the assured would not, during the time specified in the pol., voluntarily do anything to make the condition of the building vary from this description, so as thereby to increase the risk of the underwriters,” otherwise “indemnity might continue, and yet the quality, condition, and incidents of the subject-matter ins. might be so changed as to increase tenfold the chances of loss, which upon a just calculation might be reasonably expected to fall upon the underwriters.” Further, “Can it be successfully contended, that having done so, the assured retain a right to the indemnity for which they had stipulated on a totally different basis?” Finally, “That assuming the law to be that upon an ins. against fire, there is an implied engagement that the insured will not afterwards alter the premises so that they shall not agree with the description of them given in the pol., and so that thereby the risk and liability of the insurers shall be increased, the Court had only to consider, in the case in question, whether the insured had not done so.” The Court reviewed the case of *Pim v. Reid*, and showed wherein the ruling of that case did not apply to the present.

In the case of *Stokes v. Cox*, 1856, the ins. was upon the premises and stock of a currier. The description in the pol. was “a range of buildings of three stories, all communicating, situate in Walsall, comprising offices, warehouses, carriers' shops, and drying-room; part of the lower story of the said buildings being used as a stable, coach-house, and boiler-house—no steam engine employed on the premises—the steam from the said boiler being used for heating water and warming the shops.” The following special clause was in the pol. : “N.B.—The process of melting tallow by steam in the said boiler-house, and the use of two stove pipes is hereby allowed; but it is warranted that no oil be boiled, nor any process of japanning leather be carried on therein, or in any building adjoining thereto.” There was this condition on the pol. :

If after the ins. shall have been effected, the risk shall have been increased by any alteration of the materials comprising the buildings, or by any erection of any stove, coal kiln, furnace, or the like, or the introduction of any hazardous process, the deposit of any hazardous goods, the making of any hazardous communication, or by any other alteration of circumstances, and the particulars of the same shall not be indorsed on the pol. by the sec. or some other authorized agent of the Co., and a proportionate higher prem. paid, if required, such ins. shall be of no force.

The description was correct when the pol. was issued, but subsequently a steam engine and bark mill were erected, the former being supplied with steam from the existing boiler and furnace. No notice was given to the office. A fire afterwards occurred, which was purely accidental, and in no way attributable to the steam engine or bark mill; and upon an action being brought, the jury found by consent “that the risk of fire was not increased by the erection or use of the said steam engine or bark mill,” and thereupon a verdict was returned for the plaintiff. This decision was confirmed on appeal to the Exchequer Chamber.

In *Somers v. Athenaeum F. Assu. Co.*, 1858, it was *held*, that the error of an Ins. Co.'s agent in making and transmitting to the head office a diagram of the buildings ins., by means of which the buildings are described in the pol. as "detached" instead of "as connected with other buildings," cannot deprive the insured of his remedy on the pol.; and to a plea setting up that the pol. was obtained by false and fraudulent misrepresentations, as to the buildings being "detached," and as to the number of the occupants, and that thereby the conditions of the pol. were broken, and the plaintiff deprived of all benefit under it, the plaintiff is entitled to answer, denying such misrepresentations, and alleging the visits of the Co.'s agent to the insured premises, and his doings as to the making and transmitting of an erroneous diagram. [9 Lower Canada, S.C. Montreal 61.]

In *Baxendale v. Harvey*, 1859, the ins. was on premises in which there was a steam engine mentioned in the pol. The engine was then used to hoist goods, of which the Co. was notified. Afterwards machinery was put up for grinding, and attached to the engine, of which the Co. had no notice; and subsequently a renewal of the pol. was executed. There was a condition that every pol. would be void, unless the nature and material structure of the buildings and property ins. be fully and accurately described, etc.:—*Held*, that the alteration did not render the description in the pol. inaccurate within the meaning of the condition, so as to avoid the pol.

In *Chase v. Hamilton Ins. Co.*, 1859, the application [proposal] form stipulated that the insurer would not be bound by any acts or statements made by or to any agent, unless contained in it; and that applicant [proposer] should be liable for all statements in application if made through an agent. The property to be insured was described in the application as a "stone dwelling-house," without describing the fact that there was a wood kitchen attached, although such fact was well known to the agent:—*Held*, that the Co.'s proposition was to insure a "stone" dwelling-house, and assured accepted this proposition; and as the house was part wood and part stone, it was not embraced in the proposition, and no contract to insure such a house was ever made, and insured could not recover; and that the knowledge of the agent was immaterial—reversing a previous decision. [20 N.Y. 52.]

In *Benedict v. Ocean Ins. Co.*, 1860, it was *held*, that where it is shown that an Ins. Co. prepared a pol. of ins. after a careful examination of the insured premises by their own surveyor, and with a full knowledge of the nature of the risk, any misdescription of the property in the pol. must be deemed the fault of the Co., and the insured should not be called upon to bear the consequences. [1 Daly, N.Y. 8.]

In *Pim v. Lewis*, 1862, a pol. had been issued by the *West of England* on premises, part of which consisted of a water corn mill, which was employed at the date of ins. (1857), and for some years previously, for grinding not only corn, but the offal of corn, *i.e.* the pollard or finer part of the husk, and also rice chaff, the husk of rice. The pol. contained a condition that "to prevent fraud," the pol. should be void if the assured should omit to communicate any matter material to be made known to the Co., in order to enable them to judge of the risk. After the issue of the pol., but in the same year, another part of the premises, which had been previously used as a chocolate mill, was applied to grinding rice chaff. The agent of the Co. had looked over the premises when the proposal was made, but directed no particular inquiry to what was ground in the mill. A loss occurred, and an action being brought, the defence was the grinding of rice chaff, which, it was contended, was especially dangerous. Evidence was given by scientific persons, and surveyors of ins. offices, to prove this; but the latter only spoke from hearsay or vague impression, and the former from analysis. There were no practical witnesses for the defendants, to prove that the grinding of rice chaff was more hazardous than the grinding of pollard, while there were witnesses to the contrary for the plaintiff. Baron Martin put the matter in this form: "Did the plaintiff then omit to communicate a matter which he might well presume they knew?" He said it all turned upon that, for there was no pretence for imputing misrepresentation, as the plaintiff made none. Was the matter, however, material to be known to the Co.? Unless it was material, there could be no defence. A verdict was found for the plaintiff.

In *Franklin Fire Ins. Co. v. Updegraff*, 1862, it was *held*, that an ins. on "merchandise" such as is usually kept in country stores, is not void because hardware, china, glass-ware, looking-glasses, etc., were not specifically mentioned, if the articles were such as are usually kept in country stores. [43 Penn. St. 350.]

In *Benedict v. Ocean Ins. Co.*, 1865, *held*, that describing a building as a five story brick building, and making no mention of a cellar under it, is not a misdescription, though there be a cellar under the building. [31 N.Y. 389.]

In *Tessin v. Atlantic Mut. Ins. Co.*, 1867, it was *held*, that if there be such a variance between the description of property intended to be insured and its actual description as will amount to a breach of warranty in any material respect, the pol. will be void; although the insured intended to effect an ins. on the property by whatsoever description might be correct. [40 Mo. 33.]

A still further question arises, when the insured, having effected an ins. upon stock-in-trade or machinery, undertakes, after the date of the pol., an add. or different trade or bus., not a part of or incidental to the first. This is often specially provided for by a con-

dition; when it is not, two questions may arise: (1) whether the alteration has caused any increase of risk; (2) whether the new stock is covered by the ins. Assuming there has been no unauthorized increase of risk to avoid the pol., if a claim is made for a loss upon property forming part of the new or add. stock, the question must turn upon the wording of the pol., and whether, applying the ordinary rules of construction, it can be fairly inferred that it was within the terms of the contract.—Bunyon, *Fire Ins.*, 1867.

Mr. Flanders, in his *Law of Fire Ins.*, 1871, treats this question with great lucidity. Confirming what we have already stated [CONSTRUCTION], that the same rules of construction which are applicable to all other instruments are applicable to pol. of ins., he says: "Hence an inaccurate description [of the locality of the risk] may be corrected by construction, if there is enough besides to identify the place, and thus supply the means of making the correction; or if the instrument, as a whole, shows certainly that it was an error, and shows with equal certainty how the error should be corrected." In the U.S. questions of misdescription of locality and proximity to other buildings occur much more frequently than here. After the numerous cases we have given, it does not seem necessary to pursue the subject further. [CONCEALMENT.] [DECLARATION, THE.] [FRAUD.] [LOCALITY OF RISK.] [MISREPRESENTATION.] [NOTICE OF ALTERATION.] [OCCUPATION.] [PROPERTY COVERED BY FIRE POL.] [REPRESENTATIONS.] [WARRANTY.]

DESCRIPTION OF SHIP OR VESSEL.—In Marine Ins. it is not usual for the person seeking the protection of ins. to give any further description of the vessel than its name, and whether sailing or steam; together with the name of the captain, if known. The underwriter, by means of *Lloyds List*, the *Beau Veritas*, and similar compilations, has the means of knowing the build and class of the vessel. Where the ins. is upon merchandize on "ship or ships," the names are frequently not even known at the time the ins. is effected.

DESCRIPTION OF VOYAGE.—The only description of the voyage usually given in what is termed a "voyage pol." is "at and from — to any —." The first blank being filled in with the name of the place from which the voyage commences; the second by the name of the place where it is to end, as "any port in Southern Australia," etc. In this little clause (says Arnould) an accurate description of the voyage insured, the whole course actually taken by the ship, the track which she is to pursue through the waters, the straits to be passed, the islands to be left on the one side or the other, the capes she is to double, the reefs and shoals she is to avoid—all this, in the travelled course of trade and navigation, familiar now to the assured and insurer, is implicitly conveyed and stipulated by simply naming the place at which the voyage insured is to begin, and the place at which it is to end—severally called, in technical language, the *terminus a quo* and the *terminus ad quem* of the voyage ins. or of the risk.

These termini must be expressed with great care and distinctness in the pol. In the case of a voyage pol. the underwriter cannot know the nature of the risk he is asked to insure, nor consequently the amount of the prem. he ought to require, unless he knows the nature of the voyage on which the ship is to sail or the goods are to be conveyed. Any failure of distinctness may have the effect of vitiating the pol. If the *terminus ad quem*, or port of ultimate destination, be left in blank, though this were done for the purpose of deceiving the enemy, and private instructions given to the captain as to the port for which the ship was really destined, the pol. is nevertheless void.—*Molloy*; *Marshall*; *Arnould*.

We propose to note a few of the decided cases on this point.

In *Pelly v. Royal Exchange Assu. Corp.*, 1757, Lord Mansfield said: The insurer, in estimating the prem. must have considered the usual course of the voyage; and describing the voyage in the pol. is an express reference to the usual manner of making it, as much as if every circumstance were mentioned.

If a pol. describes a voyage at and from a place which is the head of the port, it will not cover a voyage at and from a distinct place which is a member of the same port—*Payne v. Hutchinson*, 1808. But under a pol. at and from an island, the ship is protected in moving from port to port in the same island—*Cruikshank v. Jansen*, 1810.

In *Bragg v. Anderson*, 1812, it was held, that a pol. at and from Martinique and all and every West India Islands, warrants a course from Martinique to islands not on the homeward voyage. But in the more recent case of *Brown v. Tayleur*, 1835, it was held that under an ins. from the port of loading, a loading at one single place only is authorized.

In *Uhde v. Walters*, 1811, the ins. was on voyage to any port in the Baltic. Evidence was admitted to prove that the *Gulf of Finland* is considered in mercantile contracts as within the Baltic, although the two seas are treated as separate and distinct by geographers.—In *Robertson v. Money*, 1824, the pol. was on a voyage "at or from the port or ports of discharge and loading in India and the East India Islands." Evidence was admitted to show that the Mauritius was considered in mercantile contracts as an East India Island, although treated by geographers as an African island. But the Court, later in the same year, decided, in *Robertson v. Clarke*, that the Mauritius was not in the East Indies, nor was it an African island.

In *Redman v. London*, 1813, it was held, that if parties describe in the usual terms the voyage they insure, both knowing that the adventure has deviated from that description,

they are nevertheless bound by the description they have chosen, and a previous deviation in the voyage was fatal.

DESERTION OF SHIP'S CREW.—Justifiable desertion of a ship by its crew entitles the insured to at once give notice of abandonment. To make desertion justifiable, and the loss total, it must appear that the ship could not have been brought into port. A ship deserted at sea by her crew on account of sea damage, and brought by others into port, where the insured may have her restored to him, cannot, after being so brought in, be abandoned, unless she comes in so damaged and incumbered with liens and repairs, that the loss is still thereby a total loss.—Crump, *Specimens of a Code of Marine Ins. Law*, 1873.

DESICCATION (from *desicco*, to dry up).—The operation of drying bodies by natural or chemical processes. Wood in a desiccated state, by being long exposed to the action of heat, becomes exceedingly liable to ignition. Even the skirting boards of rooms and passages warmed by steam, when in close contact with the pipes, become desiccated.

Mr. Braidwood, in his evidence before a Committee of the H. of Lords, stated that by long exposure to a temperature not much exceeding that of boiling water, or 212°, timber is brought into such a condition that it will take fire without the application of a light. The time during which this process of desiccation goes on until it ends in spontaneous combustion is from 8 to 10 years.

DESPACHEURS.—Persons appointed to settle cases of average. The French designation of average-staters.

DESTINATION.—The destination of a ship or cargo must be stated in the pol. See DESCRIPTION OF VOYAGE.

DESTRUCTION OF BUILDINGS TO STOP FIRE.—Ever since the Great Fire of Lond., 1666, if not earlier, the practice of destroying buildings in view of staying the ravages of fire has been understood. Where such destruction takes place at the instance of the civil authorities, under the assumed power they are held to possess when acting for the common good, the consequences of the destruction, that is to say, the liability for damages, falls upon the town; and hence it may be doubly beneficial to the ins. offices that such destruction of buildings should take place—for the property destroyed being ins. might itself become a claim; while other property, which may be also ins., is likewise spared.

But it does not follow that the F. ins. offices are to escape altogether from some share of the loss which may arise under such cases of destruction of property, as the following decisions will show.

In the case of *City F. Ins. Co. v. Corlies*, before the Supreme Court in 1839, the facts were as follow:—The fire pol. on merchandize agreed to make good to the insured all such loss and damage to the property as should happen by "fire." In the great fire in New York, in 1835, the store containing the goods ins. was, by order of the mayor, blown up with gunpowder, to prevent the spread of the conflagration. At the time this was done the buildings all around were on fire, and were afterwards destroyed; and according to every prob. "the fire would have destroyed the store in question, if it had not been blown up." It was held that this was a loss within the meaning of the pol.

The point in dispute in this case was not the whole of the sum ins., but only the difference between the amount awarded by the city and the actual damage to the property destroyed. This point is further dealt with in the case which follows.

In *Pentz v. The Receivers of the Etna F. Ins. Co.*, which came before the Court of Chancery in N.Y. in 1842, the property had been destroyed at the same fire (1835) in a like manner by order of the mayor. The owners obtained a judgment against the city, in which the jury assessed the value of the property at a sum below the amount of ins. which had been granted by the defendant Co. In the Court below this verdict of the jury had been held conclusive of the amount of loss sustained by the insured, and his right to resort to the insurers for the bal. of alleged claim had been denied. The case now came forward on appeal, and the judgment of the Chancellor was in substance as follows:

I think the Vice-Chancellor erred in supposing the verdict of the jury upon the assessment was conclusive evidence between these parties as to the actual amount of loss which the petitioners had sustained. As between the petitioners and the city corp. it was conclusive. And the ins. co. would have no claim upon the city of N.Y. except through the petitioners, and as being subrogated to their rights, it would be conclusive as between the corp. and that co. But the decision in the Supreme Court, in the case of the *City F. Ins. Co. v. Corlies*, shows that the insurers were liable to the assured to the extent of their pol., notwithstanding the blowing up of the buildings. The application for an assessment against the corp. was for the benefit of the insurers to the extent of the ins., and for the benefit of the petitioners [the insured] for the residue of the loss. And if the jury, without any fault on the part of the assured, should refuse to give the whole amount of the loss, either because they thought some part of the property would undoubtedly have been destroyed by the fire if the buildings had not been blown up, or for any other cause, there is no principle which can make that decision conclusive as to the actual extent of the loss, as between the insurer and the insured. The fact that a part of the property would unquestionably have been lost by fire if the buildings had not been blown up, would be a good reason for not including that amount in the assessment against the City. But it would be no reason for excusing the insurers from bearing their proportion of that loss which was covered by the pol.

Again, the proceedings against the corp. being for the benefit of the insurers as well as the assured, the latter were entitled to a deduction from the amount recovered from the city corp., on account of the necessary costs and expenses of litigating that assessment through all the courts, and the loss of int. (if any) which had been sustained without any fault on the part of the petitioners.

The claim against the underwriters must therefore be adjusted by ascertaining the whole extent of the loss, at the cash value of the buildings and goods at the time of the destruction thereof, including

the int. thereon, until the time when the money was recovered under the assessment, and then deducting therefrom the amount received as the proceeds of the assessment, and charging the insurers with a proportionate share of the costs and counsel's fees of that litigation, in proportion to the benefit it was to them in limiting their liability under the pol. But this in such a manner as in no event to charge the insurers with more than the amount of the two pol., and the int. thereon from the day the amount became due and payable by the underwriters. If the receivers and petitioners cannot agree upon an assessment on these principles, the referees must review their report and ascertain the amount due, and report the same to the Vice-Chancellor, to the end that a proper order may be made thereon for the payment of the distributive share of the petitioners out of the funds in the hands of the receivers.

The decision in this case seems to rest on the familiar doctrine that a judgment *inter alios* is not an estoppel.—*Bennett*.

DETACHED BUILDINGS are those free from external exposure by being disconnected from any other or others by a greater or less distance; but on the other hand not meaning entirely isolated. A building may stand detached, but yet, by reason of its construction, as to doors, windows, and roof, may be really in more danger from adjacent buildings, than another building erected with due regard to surrounding circumstances, much more closely surrounded. The eye of a practised fire office surveyor can judge of these matters at a glance—always having regard to the nature of the contents and uses of surrounding buildings.

Capt. Shaw, in his *Fire Surveys*, 1872, says:

The distance apart of buildings fronting each other should be in proportion to their height; in fact, as a simple rule, it might be laid down that they should be separated by a distance equal to half their combined height. Thus, for instance, a building of 60 feet and a building of 30 feet might safely occupy opposite sides of a street 45 feet wide.

Mr. Griswold, in his *Fire Underwriter's Text-book*, 1872, informs us of the practice in the U.S.:

Custom among fire underwriters has given the term "detached" a broader and more definite signification, thus: *Brick* buildings are said to be *detached* when distant 75 feet to 80 feet from other similar risks, or ordinary hazards. The presence of a specially hazardous risk within less than 100 feet would ordinarily remove the building from the category of *detached* buildings. The term being thus arbitrary, much will depend upon judgment. In cases of frame [timber] buildings nothing less than 100 feet would be considered *detached* under similar circumstances.

DETENTION.—Among the risks ordinarily undertaken by marine ins. underwriters, and embodied in the pol. of Marine Ins., is that of "restraints and detentions of all kings, princes, and people, of what nation, constitution, or quality soever." "People" here means the governing power of a country. A detention is sometimes described as an ARREST, and sometimes as an EMBARGO; but there appears to be really no settled distinction in the application of the terms.

The following rules of law and practice regarding Detention are drawn from Park, and other writers upon the subject:

1. In case of an arrest or embargo by a prince, though not an enemy, the insured is entitled to recover against the insurer.
2. In case of detention by a foreign power, which in time of war may have seized a neutral ship in order to be searched for enemy's property, the charges consequent thereon must be borne by the underwriter.
3. But a detention for non-payment of customs, or for navigating against the laws of those countries where the ship happens to be, shall not fall upon the underwriter.
4. The insurers are liable for payment of damage arising by the detention or seizure of ships before the commencement of the voyage, where the risk is "at and from," by the Government of the country where the ship loads.
5. British underwriters are not liable for damages which owners of foreign vessels may sustain from embargo laid by British Gov. on foreign ships.
6. Foreigners insured in this country cannot abandon to underwriter here because *his* Gov. has laid an embargo on property in the ports of the country of the insured. The case is different where the insured and insurer are subjects of the same State.
7. Every man is a party to the public authoritative acts of his own Gov., and cannot make the consequences of such acts the foundation of a claim to indemnity.
8. But when the insured is a subject of Gt. Brit., he may recover against a British underwriter for the loss sustained by the detention of the Brit. Gov.
9. Where a pol. was effected after declaration of war by America (1812), and it was not communicated to the underwriter that the insured were American subjects, and the ship was seized by the American Gov.:—*Held*, the insured could not recover—*Campbell v. Innes*.
10. The rule that the notification of a blockade is notice to all the subjects of the nations to which the notification has been made, is open to some relaxation for the benefit of commerce; and in cases of insurance knowledge of the blockade by the insured must be proved.
11. A vessel may sail for a blockaded port, after a notification of blockade, for the purpose of inquiry whether the blockade continue.
12. Before the insured can recover in case of detention, he must abandon to the insurer whatever claims he may have to the property insured.
13. The abandonment must be made in such cases "within a reasonable time"; and what that shall be must in general depend upon the circumstances of the case.
14. If a ship be recovered after a long detention, it is not a total loss. Goods detained by a foreign power, being afterwards restored, the yielding up, *quasi in integro*, is to be considered, as between the insurer and insured, a restoration, notwithstanding some spoliation during the detention.
15. A detention by particular Ordin., which contravene, or do not form a part of the law of nations, is a risk within the pol. of ins.

For amplifications of these principles and points, the leading works on Marine Ins. must be consulted.

In France the *Code du Commerce* provides that the wages and provisions of the sailors during a detention of princes shall be *particular average*, when the ship is chartered for the entire voyage; *general average*, when the ship is hired at so much per month (arts. 4 and 6)

The reason being, that as in the latter case the owner receives no freight for the time during which the ship is detained, he does not owe the services of his crew during such time to the freighters, and his providing such service is, therefore, an extraordinary expenditure for the general benefit.—*Arnould*.

Emerigon considers that the detention of ships in port after declaration of war against the country to which they belong, or by way of reprisals, rather resembles a *capture* than an *arrest*. Marshall expresses the same view. [ARREST.] [CAPTURE.] [EMBARGO.] [PRIZES.]

DETERIORATED LIVES.—See DISEASED LIVES.

DETERIORATION OF HUMAN RACE.—This subject will be noticed under HUMAN RACE.

DETERMINABLE FREEHOLDS.—Estates for life, which may determine upon future contingencies before the life for which they are created expires. As if an estate be granted to a woman during her widowhood, or to a man until he be promoted to a benefice; in these and similar cases whenever the contingency happens—when the widow marries, or when the grantee obtains a benefice—the respective estates are absolutely determined and gone. Yet while they subsist they are reckoned estates for life; because the time for which they will endure being uncertain, they may by possibility last for life, if the contingencies upon which they are to determine do not sooner happen.—*Blackstone's Commentaries*.

DETRITUS (from *detero*, to waste away).—The waste of a tissue or organ; that which remains after disorganization.

DEUCHAUR, DAVID, Joint Sec. and Act. of *Edinburgh L.* since 1869. He entered the *Standard* in 1858, and, after passing through the various departments of that office, he became, in 1866, Assistant Act. of the *Caledonian*. From that office he passed to his present position. This name is destined to become more familiar in Ins. circles.

DEVELOPMENT OF SPECIES AND RACES.—This subject will be treated of under HUMAN RACE.

DEVELOPMENTAL DISEASES.—These stand as Class IV. in English Diseases. They are divided into four Orders—(1) *Developmental Diseases of Children*; (2) *Developmental Diseases of Adults*; (3) *Developmental Diseases of Old People*; (4) *Diseases of Nutrition*; and subdivided into nine forms, each of which we speak of under its separate head, viz. PREMATURE BIRTH; CYANOSIS; SPINA BIFIDA; MALFORMATIONS; TEETHING; PARAMENIA; CHILDBIRTH; OLD AGE; ATROPHY AND DEBILITY.

Dr. Farr says in 32nd Rep. of Reg.-Gen. pub. 1871 :

The reproduction and growth of the human race are interrupted in various ways, and the interruption proves fatal in a certain number of cases. The first order of fatal causes concerns children. Still-born children are not regis., but many of the infants that are born before term are born alive, and some survive. In the year [1865] 8666 children born alive prematurely died, and are so returned, without any reference to any specific disease; 1454 deaths are referred to malformations. The teeth are cut with pain and difficulty, and in weakly children the consequent irritation is sometimes fatal; but it is prob. that some of the 4083 deaths referred to teething are due to latent causes at work during the period of teething. Of women, 122 are stated to have died of *paramenia*; while 2102 died of childbirth, exclusive of 1181 who died of *metria*.

The deaths of children will be fully considered under INFANT MORT. The deaths from CHILDBIRTH are already treated of. The following, from Dr. Farr's Letter in 30th Rep. of Reg.-Gen., may be taken as supplemental thereto:

There were 1066 deaths in the year 1867 referred to metria (puerperal fever), and 2346 to the other dangers of child-bearing, including, specifically, miscarriages, 55; abortion, 75; puerperal mania, 85; puerperal convulsions, 366; phlegmasia dolens, 65; extra-uterine foetation, 11; retention of placenta, 34; breast abscess, 9; flooding, 483; placenta prævia, 149; rupture of uterus, 41; deformed pelvis, 10; operation for craniotomy, 1; Cæsarian operation, 4; the particular causes of 958 deaths being unassigned. In addition to these deaths by childbirth, the particulars of 521 deaths by other diseases after child-bearing are given, as these other diseases were the main causes of death. Then 16 other deaths by diseases are specified as having occurred to pregnant women. There are about 576,262 women [equal to three-fourths of the ann. births] with child, and the deaths among them would amount to 6339, at the rate common to their age. It is not likely that early pregnancy is mentioned in the certificates, unless it had a direct connexion with the death; so as 3949 of the deaths are here accounted for, the deaths from other diseases must have been less than the deaths among men from those other diseases at the corresponding ages. Smallpox, scarlet fever, enteric fever, typhus, cholera, are almost invariably fatal to the women with child attacked; but whether they enjoy a certain immunity from attacks of disease, well deserves inquiry.

I have endeavoured to show in the Tables 19-25 the mort. of child-bearing women at different ages during the 7 years 1848-54, and 13 years 1855-67. In the former period 531, in the latter period 483 women in 1000 delivered died. The mort. was lowest in the middle of the child-bearing age (25-35): then about 4 in 1000 died; at the earlier age (15-25) the mort. was 6 or 7 in 1000; so at the later age (35-45) it was 6; and at the extreme age of 45-55 it ranged up to 7 or 9.

The other branches of the subject will be treated under their appropriate heads.

DEVELOPMENTAL DISEASES, DEATHS FROM.—The number of ann. deaths in this class in England fluctuates but little. In ten years they were as follows: 1858, 69,895; 1859, 69,708; 1860, 70,311; 1861, 71,948; 1862, 68,842; 1863, 71,467; 1864, 75,660; 1865, 77,806; 1866, 76,873; 1867, 78,090. For 15 years ending 1864, the average number of deaths to one million living was 3595.

The deaths in 1867 were thus divided: Males, 37,563; Females, 40,527. Of the Males, 19,770 died under 1 year and 22,915 under 5; 131 between 5 and 10; 29 between 20 and 25; 158 between 45 and 55; 3316 between 65 and 75; and 163 over 95. Of the Females, 15,791 died under 1 year, and 18,863 under 5; 154 between 5 and 10; 392 between 20 and 25; 352 between 45 and 55; 4108 between 65 and 75; and 362 over 95.

DEVEST [or Divest].—To deprive, to take away; opposite to *invest*, which is to deliver possession of anything to another.

DEVY, F. W., pub. 1867: *Speculations on the Method of Extinguishing Fires without Water*. [FIRE ANNIHILATORS.]

DEVIATION OF SHIP'S VOYAGE.—By deviation is understood to mean a *voluntary departure, without necessity, or any reasonable cause, from the regular and usual course of the voyage insured*. Whenever this happens, the voyage is, as regards the risk of ins., determined, and the insurers are discharged from any responsibility. The reason of this is because the ship goes upon a different voyage from that against which the insurer undertook to indemnify. It is necessary to insert in every pol. of marine ins. the place of the ship's departure, and also of her destination. Hence it is an implied condition, to be performed on the part of the insured, that the ship shall pursue the most direct course, of which the nature of things will admit, to arrive at the destined port.—*Park*.

In our art. **BOTTOMRY**, we have shown how in *Athens* some 400 years B.C., it was a part of the contract that vessels upon which Bottomry loans had been made were limited in regard to their course of sailing much as vessels are now; and that any deviation from the recognized and stipulated course was punishable by a fine of twice the amount of the money orig. advanced! From that period down to the present, whatever form the contract of Marine Ins. may have assumed, we suspect the stipulations regarding *Deviation*, as also regarding other essential points, have remained the same. We might cite many authorities in support of this view. We must be content to quote one or two writers who have most largely drawn upon the Civil Law for the principles they lay down.

An insurer is understood to incur no risk but for the voyage agreed upon; for if the ship alters its course, or deviates from the *direct* track of its voyage, the insurer is no longer bound: unless, indeed, the master alters his course from motives of necessity, such as to refit his vessel, escape a storm, or to avoid an enemy; in which cases, notwithstanding the alteration of the ship's course, the insurers remain fully bound.—*Roccus*, 1655.

Real and imminent danger of shipwreck, or stranding, or of falling into the hands of enemies or pirates; contrary winds, storms, a necessity of obtaining a port to stop a leak, or repair damages;—these are *just and reasonable causes* of deviating from the direct course of the voyage.—*Stracca*; *Kuricke*; *Casa Regis*; *Valin*.

In an early case, reported by Salkeld, it was *held*:—If after a pol. of ins. granted a *damage* happens, and afterwards in the same voyage a deviation, yet the assured shall recover for what happened before the deviation; for the pol. is discharged from the time of the deviation only.

In the case of *Cock v. Townson*, the ship *George* was bound from Cork to Jamaica with a convoy in time of war. The captain, in concert with two other vessels, took advantage of the night, and being ships of force, *cruised* and thereby deviated out of the direct course of their voyage, in hopes of meeting with a prize. Lord Camden and the jury held, that clearly from the moment the *George* deserted or deviated from the *direct* voyage to Jamaica the policy was discharged.

In the early case of *Salisbury and others v. Townson*, a ship insured from Liverpool to Jamaica put into Douglas Bay in the Isle of Man. It appeared there were some instances of the Liverpool ships putting in there, but it was not the *settled, established, common*, and direct course of the voyage and trade; therefore it was held a deviation, and discharged the underwriters from any loss that happened subsequent to the deviation.

In the case of *Fox v. Black*, tried at Exeter, 1767, the plaintiff was a shipper of goods in a vessel bound from Dartmouth to Liverpool. The ship sailed from Dartmouth and put into Loo, a place she of necessity must pass in the course of her insured voyage. But as she had no liberty given her by the policy to go into Loo, and notwithstanding that no accident befel her by going into or coming out of Loo—for she was lost soon after she got to sea again—yet her going into Loo was a deviation, and a verdict was found for the underwriter.

There are, as might be expected, numerous cases in the law-books arising out of disputed cases of deviation as affecting the contract of ins. So numerous indeed are the cases that we do not propose to follow them in detail, but must be content—on the ground of space alone—with a summary of the leading points of law and practice, as deduced from the decided cases, ranging over several centuries; and as based upon and embodying the principles handed down to us by the Civil Law. For this summary we are mainly indebted to Park [*Marine Ins.* 8th ed., 1842, by Hildyard].

1. It is not material whether the loss be or be not an actual consequence of the deviation; for the insurers are in no case answerable for a subsequent loss, in whatever place it happen, or to whatever cause it may be attributed.

2. Neither does it make any difference whether the insured consented or did not consent to the deviation.

3. If a master of a vessel put into a port not usual, or stay an unusual time, it is a deviation.

4. The time a ship is detained in port for necessary repairs, the ins. being "at and from," is not to be considered unnecessary delay, so as to avoid the pol.

5. An ins. on *ship and freight* is not vitiated by the ship taking in goods at a place into which she was forced by necessity, although there was no liberty to trade given by the pol.

6. If several places are named in the pol., the ship must go to those places in the order in which they are named, unless some usage or some special facts be proved to vary the general rule.

7. From the moment there is a wilful deviation from the due course of the voyage, the contract between the insured and underwriter is at an end. If the deviation be but for a single night, or for an hour, it is fatal.

8. If a merchant ship carry letters of marque, she may *chase* an enemy, though she may not *cruise*, without being deemed guilty of a deviation.

9. Liberty given to a merchant ship with a letter of marque to "chase, capture, and man prizes," does not justify her in *lying to* for the purpose of protecting a prize as a convoy into port.

10. Liberty to a merchant ship "to see prizes into port" does not authorize her to stay till they receive necessary repairs, which they could not otherwise procure.

11. Wherever the deviation is occasioned by absolute necessity, as where the crew forced the captain to deviate, the underwriter continues liable.

12. If a ship is decayed, and goes to the nearest port to refit, it is no deviation.

13. Wherever a ship, in order to escape a storm, goes out of the direct course; or when in the due course of the voyage is driven out of it by stress of weather; this is no deviation.

14. If a storm drive a ship out of the course of her voyage, and she do the best she can to get to her port of destination, she is not obliged to return to the point from which she was driven.

15. A deviation may also be justified if done to avoid an enemy, or to seek for convoy at the place of rendezvous.

16. Whenever a ship does that which is for the general benefit of all parties concerned, the act is as much within the spirit of the pol. as if it had been expressed; and in order to say whether a deviation be justifiable or not, it will be proper to attend to the motives, end, and consequences of the act, as the true ground of judgment.

17. A ship may go out of her course to relieve another in distress, without being guilty of a deviation.

18. If a ship deviate from necessity, she must pursue such *voyage of necessity* in the direct course, and in the shortest time possible, otherwise the underwriters will be discharged. And in such a case nothing more must be done than the necessity requires.

19. In an ins. upon a trading voyage, such trade must be carried on with usual and reasonable expedition.

20. A deviation merely intended, but never carried into effect, does not discharge the insurers.

21. If it can be shown that the parties never intended to sail upon the voyage insured; if all the ship's papers are made out for a different place from that described in the pol.; the insurer is discharged, though the loss should happen before the dividing point of the two voyages.

22. But where the *termini* of the voyage continue the same, an *intention* to go to an intermediate port, though that intention should be formed previous to the ship's sailing, will not vitiate it till actual deviation. Whatever damage happens before actual deviation will fall upon the underwriters.

23. The justifications for a deviation seem to be these: (1) to repair the vessel; (2) to avoid an impending storm; (3) to escape from an enemy; (4) to seek for convoy.

24. What a captain justifies a deviation by the usage of a particular trade, there must be a clear and estab. usage—not a few vague instances only.

25. The doctrine of Deviation is applicable to an ins. on *freight*, as well as on ship and merchandize.

26. Subject to the rules already advanced, deviation or not is a question of fact to be decided according to the circumstances of the case.

27. In cases of deviation the *prem.* is not to be returned.

All these points are supported either by cases or by the opinions of the most learned writers upon the subject of Marine Ins. and Maritime Law. [DEPARTURE.] [DESTINATION.] [DETENTION.] [VOYAGE.]

DEVISE.—A gift by a last will and testament. The giver is called the *devisor*, the person to whom it is given the *devisee*. This word is properly only applied to real property, but in wills it transmits personal property, as well as the word *bequeath*—the proper term; and *vice versâ*.—*Wharton*.

DEVISEE.—A person to whom property is devised or bequeathed. [If the property be personal, he should be called the legatee.] An expectant devisee has no insurable interest; but it appears that the purchaser of such a devise has. This was determined in the case of *Cooke v. Field*, 1850, in an action upon an assignment of a pol. in the *United Kingdom* Life. The circumstances of the case were peculiar, and will be fully stated in our art. **INSURABLE INTEREST.**

With regard to Fire Ins., a devisee may, under various circumstances, have to seek its protection. Thus in the case of *Gregg v. Coates*, 1856, there was a direction by a testator that his devisee might occupy a mill at a rent of £100, he, nevertheless, keeping the premises in good and tenantable repair. Upon the acceptance of the gift by the devisee, and the subsequent total destruction of the mill by fire, it was *held*, that he was bound to reinstate the damage, and pay the rent in the mean time.

Again, when a person insured under a fire pol. dies after a fire, but before payment of the claim, the right to sue is complete, and vests in his personal representatives, and the ins. money will form part of the personal estate, unless where the amount insured is *on buildings*: and in that case the heir or devisee can intercept it, by requiring its expenditure in reinstating the premises, under the provisions to this effect in the Building Act.—*Bunyon, Law of Fire Ins.*

DEVIZES FIRE INS. CO.—A co. under this title appears to have been founded in the town of Devizes early in the present century; but at present we have not succeeded in obtaining authentic details concerning it.

DEVON (SOUTH) FIRE INS. CO.—Founded in 1824, and discontinued bus. in 1827. Its fire duty returns were as follow:—1825, £408; 1826, £507; 1827, £290. [We shall be glad to obtain further details regarding this Co., and how its business was disposed of.]

DEVONPORT.—In 1840 a tremendous conflagration occurred in the Gov. Dockyard here. The *Talavera*, 74 guns, and the *Imogene* frigate, 28 guns, together with stores, the naval museum, and a great quantity of valuable naval relics, were destroyed. Loss estimated at £200,000.

DEVONSHIRE COLIC [COLIC OF POITOU].—A species of colic occasioned by the introduction of lead into the system, and named from its frequent occurrence in Devonshire

and Poitou, where lead was formerly used to destroy the acidities of the weak wines and cider made in those parts. It is also called *Painters' Colic*, from the liability of painters and plumbers to it.

Quite early in the 18th century, certainly prior to 1703, there prevailed in the county of Devon a disease of which the first and usual manifestation was a painful colic, the second a paralytic dropping of the hands; while in rare instances the sufferers became delirious or epileptic, and died at length convulsed or comatose. Cases of this disease were so numerous in Devonshire, and so rare elsewhere, that both the inhabitants, and the physicians who wrote about it, agreed in regarding it as an endemic malady. In a period of less than five years, ending with 1767, some 285 cases were received into the Devon and Exeter Hospital, of which 209, or about three in four only, were cured. Sir George Baker demonstrated that this disease was *due entirely to the action of the cyder on the lead used more particularly in Devonshire in its manufacture.*—*Public Health*, by Dr. Guy.

DEWEY, THOMAS CHARLES, Man. and Act. of Industrial Department of *Prudential* since 1873. He entered the office in 1857 as a junior, and worked his way through the various departments of the office. Under the direction of the Gen. Man. he prepared, a few years since, a valuation of the industrial bus. of the co.—prob. the first if not the only valuation which has ever been made of an industrial bus. on purely scientific principles.

DIABETES.—A disease of comparatively recent discovery, and characterized by an immoderate flow of urine containing saccharine matter,—grape sugar, which has been traced to the blood; and by Bernard, to a secretion in the liver of *glycogène* or *amylène*, transformed into sugar by aid of a ferment.

Dr. Adams Allen, in his *Medical Examinations for Life Ins.*, 1869, says :

Diabetes may be noticed in this connexion, although scarcely to be considered as a disease of the kidneys. From its insidious nature, and long absence of readily cognizable symptoms, it is liable to be overlooked both by the party applying, and the too unobservant examiner. Aside from the varying influences which, within the limits of health, may increase or diminish the amount of urine secreted, any undue quantity habitually passed should direct. Whether saccharine or not the undue amount postpones [the acceptance of the life?]. If repeated tests show the presence of sugar, or abnormal specific gravity, the risk must be declined. Absence of these, and increased amount, suggest Bright's disease.

He furnishes an outline of points which may guide the medical examiner.

DIABETES, DEATHS FROM (Class, LOCAL ; Order, *Diseases of Urinary Organs*).—The returns of deaths from this cause in England showed for some years a steady increase. In 10 consecutive years they were as follows : 1858, 514 ; 1859, 480 ; 1860, 536 ; 1861, 537 ; 1862, 574 ; 1863, 551 ; 1864, 665 ; 1865, 669 ; 1866, 678 ; 1867, 680. Over a period of 15 years, ending 1864, they averaged 25 to each million of the pop. living. For the 5 years ending 1864 they averaged 28 p. million.

The deaths in 1867 were : Males, 434 ; Females, 246. They increase steadily from the early years up to 60, and then retrograde. Dr. Farr, in the 30th Rep. of Reg.-Gen. [Abstracts, 1867], says :

The deaths ascribed to Diabetes have increased of late years; the increase is very observable since 1858; and the mortality rose to its maximum in 1864, while since that year down to 1867 it has been stationary. . . . The Tables 26, 27, show the deaths in Eng. from Diabetes extending over a period of 20 years. In the first period (1848-51) the ann. deaths were 405, in the second period 557 : the mort. to a million living in the two periods was 23 and 28. The mort. of *males* in the second period was nearly the same as the mort. of *females* at all ages up to 15; then it became as 21 to 14 at the ages 15-25; in middle life and onwards (25-65) as 2 to 1; after 65 the disparity became as 4 males to 1 female. The deaths of children were few; the mort. doubled every 5 years up to 15; and then went on increasing up to the age of 75; when the fatal process gave way to others as life wore away.

The recorded experience of Life Offices has, up to the present time, afforded no sufficient data as to deaths from this cause to enable us to judge of its influence upon their mort.

DIADEM LIFE ASSU. CO.—Founded in 1854, with an authorized cap. of £100,000 in 20,000 shares of £5 [power to increase to £500,000], “for the assu. of lives on a new and liberal principle, securing partial payments to the assured themselves, provision in case of sickness or accident, and granting annu., endowments, loans and guarantees. Invalid lives insured at an equitable rate.” The prosp. said :

At the present moment the nature, objects, and importance of Life Assu. are better understood, and consequently better appreciated, than at any previous time. Former fears and prejudices have been in a great measure removed, additional advantages secured, and the number of assurers greatly increased. Still, while it remains a fact that out of a pop. of nearly 30 millions, only about 250 thousands have assured their lives, and that the returns to January, 1854, showed that 44,900 widows alone were receiving parochial relief, it is obvious that much remains to be done before anything like a proportionate extension of Life Assu. can be realized. . . .

This Co. is constituted on broad principles of equity, and is distinguished by many liberal features, which experience has shown to be extensively desired. It is, therefore, formed to meet the wants of those who do not possess a society calculated to promote their special interests. The shares have been fixed at a small amount, and it has been resolved that the holder of 5 shall be entitled to a vote, thus affording to the assurer an opportunity of securing to himself the add. advantages of becoming a proprietor.

Shareholders in this Co. will receive 50 p.c. of the profits, which will be appropriated to increase the value of their shares, upon which accumulated value, int. at the rate of 5 p.c. and upwards will be paid.

The remaining 50 p.c. of the profits will be appropriated to the benefit of assurers. 1st. By granting loans at 2½ p.c. int., more especially to young men carrying on or commencing bus.; and, 2ndly, by allowing free annuities to distressed and aged assurers.

The Directors believe the equitable distribution of the profits in this Co. will give general satisfaction; for while it secures more of the profits to the shareholders than is distributed by many cos., it makes equal provision for all other classes, offering inducements to assurers that cannot fail to be appreciated.

The "special features to members of this Co." embraced the following :

Among the prominent advantages peculiar to this Co. is that of *dispensing with deferred bonuses*, and the great expenses attendant on their calculation and distribution. The Directors are thus enabled to grant pol. upon the lowest possible scale compatible with safety, bringing Life Assu. within the reach of all classes of the community. Example:—A person assuring at the age of 21 in most offices for £1000, with bonuses, would pay ann. a prem. of £20; the same person assu. in the *Diadem* for a like sum, would only pay £16 7s. 6d., being an ann. saving of £3 12s. 6d. By paying the above prem. of £20, he would in this office obtain a policy of £1225, being an immediate bonus of £225, which would not accrue in other offices till the lapse of very many years; or, in add. to a pol. of £1000, he could secure £300, payable to him on attaining the age of 60, or an annuity of £40 per ann. for the remainder of his life.

Another feature peculiar to this Co. is that *persons who have assu. for a sum at death may receive during their lifetime £1 in every £100 on attaining 60 years of age*. Example:—A. having assured his life for £1000 at death, may, on attaining the age of 60, withdraw ann. any sum not exceeding £100, until the sum assured be exhausted.

Another feature is that assu. have the privilege of converting any portion of their pol. into an annu. Thus an assurer, in the event of surviving the party on whose behalf he assured, and having no one to leave the money to—or the party being still living, should he require any pecuniary aid—this Co. will grant him an immediate annu. in exchange for the whole or any portion of his pol., so that a life pol. becomes an available income to the assurer in case of need.

Assurers for a sum at death, *who may become totally disabled by accident from following their occupation in life, may receive the amount of their pol. in monthly instalments, as an annu., till it be reduced to one-fifth*.

Assurers may make the amount of their policy payable as an annu. to their representatives, in such sums as they please, instead of in one payment; the Co. engaging to apply the money in the way specified. Example:—A. assures his life for £1000, he may have £500 paid to his wife or other representative at his death; and the residue in an ann. or half-yearly sum of £10, or more, with 5 p.c. int., till the sum assured be exhausted. This advantage may be applied to any life pol. effected with this Co., irrespective of the amount, and will thus doubly secure the object of the assurer, by the actual application of the money for the benefit of his family.

A pol. once granted will never be disputed (except in case of fraud), as every necessary inquiry will be made prior to its being granted, and the age and health will be duly admitted by indorsement thereon.

Pol. may be cancelled when the assurer is in adversity, and on their being surrendered a portion of the prem. will be returned, or a commuted pol. may be had without any further payments.

Persons unable to continue their prem. may have them suspended, and may resume them, upon payment of the arrears, together with 5 p.c. int.; or, if desired, such arrears may be added as a debt to the pol., to be paid off at any future period.

One-half of the amount paid in prem. may be had as a loan at 5 p.c., upon deposit of the pol. Also, loans of £10 and upwards will be granted, upon personal and other security, at 5 p.c., repayable by easy instalments, extending over a period of years.

Policies may be transferred by the substitution of one life for another: this will be found to be very advantageous to persons wishing to resign their int. in a pol. on their own life, without much sacrifice.

Prem. may be paid monthly, quarterly, half-yearly, or annually, and may be made to cease at any given age.

Under head of "General Bus. of Co." was included:—"Partnership pol. granted on equitable terms, thus securing the firm from the withdrawal of capital consequent on the demise of a partner." "Endowments for adults, payable on the assured attaining a given age, or the whole of the payments returned in case of death before that time." "*Marriage endowments securing any sum from £50 on marriage after the age of 21, with an annu. of £10 for 10 years; if unmarried at the age of 25, the annu. will be consolidated and paid to the assurer as endowment*." "Endowments for children on attaining the ages of 14, 18, or 21, payable to them on attaining the given age in one sum, or by annual, half-yearly, quarterly, or monthly instalments." "Contingent endowments payable to the assured, on attaining a given age, say £50 at 60 years, or the same amount, with interest, payable as an annuity; in case of death before arriving at the specified age, the money will be paid to the representatives." "Temporary annu. from the age of 7 or 14 to 21, securing an income from £10 p.a. during education or apprenticeship." "Guarantee pol. for sums payable in cases of defalcation, and breach of monetary trust, with life assu.—Assurers maintaining an unimpaired guarantee pol. for a term of years, will be entitled to a proportionate reduction on the prem." "Term assurances granted to members of land and building societies and mortgagees to secure payments in case of death." "Loans granted for the purpose of enabling persons to purchase leasehold, copyhold, and freehold property." "Money received on deposit at 5 p.c., etc."

There was an "Industrial Branch" including compensation during loss of employment occasioned by illness or accident. [INDUSTRIAL INS.]

It was announced: "The Directors have caused an entirely new set of T. to be prepared for this Co., and finally :

Such are the liberal features of the *Diadem*, having in view the positive advantage of the shareholders and assured, and it is believed that the Co. will be extensively supported by all classes of the community, especially by those whose interests have not previously met with that full consideration and adequate provision to which they are entitled. Detailed particulars of every feature of the Co. will be found in the book of tables.

The Consulting Act. of the Co. was Mr. Tobiah Pepper, the Sec. Mr. Thomas J. Hogg one of the auditors Mr. Thomas Walker.

The Co. transacted a small bus.; and in 1857 its connexions were trans. to the *British Provident*, No. 1; and through that channel some of the pol.-holders find themselves ultimately in the *European*.

DIAGNOSIS (from the Greek, signifying *a distinguishing*).—The act of discerning or distinguishing in general; in *medicine*, the distinction of diseases. Diagnosis may be said to be the art of converting symptoms into signs.—*Hoblyn*.

DIAGRAM.—A drawing, showing, on a scale, the size and construction of the property, the location and construction of all special features material to the risk, and the distance, location, and construction of all the more hazardous portions—aptly called in the U.S. **EXPOSURES**. [*PLAN*.]

DIARRHŒA (from the Greek, *a flowing through*).—A flux or looseness of the bowels without tenesmus.—*Hoblyn*.

Most writers who have investigated this disease closely, have come to regard it but as the advance guard of cholera. Its symptoms have been known and recorded since the days of Hippocrates, the great Greek physician, who flourished 400 years B.C. Sydenham described an outbreak in his time; but he hardly drew the distinguishing line, when the symptoms became choleraic.

Dr. Farr, in his *Rep. on Mort. of Cholera in England, 1848-9* (pub. 1852), says:

Diarrhœa, in the sense of "dejecto frequens," frequently accompanies teething in children; it is the result of a whole class of medicines, and of irritating indigestible food. Many poisons induce it. It is one of the most constant symptoms of typhus, and runs insensibly into dysentery. The last stage of consumption is marked by colliquative diarrhœa. Like pain and "fever," it is a symptom of many diseases. "It is often brought on by that power which is exerted in every part of the body of freeing itself from anything painful and oppressive." (Heberden's *Commentaries*.) The ulceration of the intestines in typhoid fever, in consumption, and in dysentery, are its common causes; in many cases no structural change can be detected in the mucus membrane; and many of the purgative medicines are first absorbed and taken into the blood before their specific action is induced.

Excluding the symptomatic affection, such as is observed in fever, consumption, and enteritis, *there is evidently an idiopathic disease, which may properly be called Diarrhœa*, and it is constantly observed in English towns when the temperature rises above 60°, as bronchitis and catarrh when the temperature falls below 32°.

Again, whenever dysentery is epidemic, a great number of cases occur which exhibit all the intermediate symptoms between simple purging without fever, and the characteristic fever, pain, and bloody mucus discharges of dysentery. The dysentery often begins as simple diarrhœa. In such circumstances the diarrhœa is really a constituent part of epidemic dysentery, modified by the condition, place, and age of the patients. In like manner, the diarrhœa, which is generally prevalent at the same time as cholera, often painless, with rice-water evacuations, vomitings, and slight spasms, is to be held, in its various shades, a constituent part of the *Cholera epidemic*.

In 1858 a Report was presented to the then General Board of Health by Dr. E. Headlam Greenhow, M.D.: *Papers relating to the Sanitary State of the People of England, etc., with an Introductory Rep. by the Medical Officer of the Board on the preventability of certain kinds of premature death*. This introductory Rep. said:

Diarrhœal diseases, for two reasons, claim particular attention. In the first place, they are increasing in this country. During the years 1838-42 the deaths occasioned by them were only 13 p. 1000 of the deaths from all causes; during the years 1847-55 their proportion was five times as great. And in the second place, their epidemic aggravations are sometimes of appalling severity. These things are almost forgotten when they are past; but prob. since the days of the Great Plague death has never so scared the English pop. as in the cholera epidemic of Newcastle in 1853, and in the Golden Square outbreak in 1854.

Again:

Nothing in medicine is more certain than the general meaning of high diarrhœal death-rates. The mucus membrane of the intestinal canal is the excreting surface to which nature directs all the accidental putridities which enter us. Whether they have been breathed, or drunk, or eaten, or sucked up by the blood from the surface of foul sores, or directly injected into blood-vessels by the physiological experimenter, there it is that they settle and act. A wine "gets into the head," so these agents get into the bowels. There, as their universal result, they tend to produce diarrhœa: simple diarrhœa in the absence of specific infections; specific diarrhœa when the ferments of cholera and typhoid fever are in operation. And any such distribution of diarrhœal disease as has just been noticed warrants a presumption—indeed, so far as I know, a practical certainty—that in the districts which suffer the high diarrhœal death-rates the pop. either breathes or drinks a large amount of putrefying animal refuse.

In 1859 Dr. Greenhow was appointed a temporary Inspector under the Privy Council, and his "Reports on the Prevalence and Causes of Diarrhœa at Coventry, Birmingham, Wolverhampton, Dudley, Merthyr-Tydfil, Nottingham, Leeds, and Manchester, with Chorlton and Salford," are embodied in the 2nd Rep. of the Medical Officer of the Privy Council, pub. 1860 (p. 65). His instructions were to investigate in each place—(1) what was the local distribution of diarrhœal disease; and (2)—so far as it was likely to relate to the causation of this disease—what both generally, and with distinction of localities, were the sanitary circumstances of the pop. Of the results of the inquiry it is not possible to give any short analysis, except perhaps by saying, almost in a word, that from first to last they consistently illustrate the preventability of death by diarrhœa.

Dr. Simon, the medical officer of the Privy Council, in his 8th Report, pub. 1866, says that the following propositions may be accepted:

That when cholera is epidemic in any place, persons who are suffering from the epidemic influence, though perhaps with only the slightest degree of diarrhœa, may, if they migrate, be the means of conveying to other places an infection of indefinite severity; that the quality of infectiveness belongs particularly, if not exclusively, to the matters which the patient discharges by purging and vomiting from his intestinal canal; that these matters are comparatively non-infective at the moment when they are discharged, but subsequently, while undergoing decomposition, acquire their maximum of infective power; that choleraic discharges, if cast away without previous disinfection, impart their own infective quality to the excremental matters with which they mingle, in drains, in cesspools, or wherever else they flow or soak, and to the effluvia which those matters evolve; that if the cholera

contagion, by leakage or soakage from drains, or cesspools, or otherwise, gets access, even in small quantity, to wells, or other sources of drinking-water, it infects in the most dangerous manner very large volumes of the fluid; that in the above-described ways even a single patient, with slight choleraic diarrhoea, may exert a powerful infective influence on masses of pop., among whom, perhaps, his presence is unsuspected; that things, such as bedding and clothing, which have been imbued with choleraic discharges, and not afterwards fully disinfected, may long retain their infectious properties, and be the means of exciting choleraic outbreaks wherever they are sent for washing or other purposes.

At the Social Science Congress, 1871, Dr. Andrew Fergus, M.D., read a paper, *Excremental Pollution a Cause of Disease, with Hints as to Remedial Measures*; wherein occurs the following passage:—"Another group of diseases, arising from excremental pollution, are the diarrhoeal, including cholera." He quotes many authorities in support of this view; but we need not further pursue it here.

Dr. Adams Allen, in his *Medical Examinations for Life Ins.*, says:

Diarrhoea is a term relative to the habits of the individual. It does not refer so much to the frequency as to the character of the discharges. Occasional attacks of acute Diarrhoea may occur in the very best risks. Such cases point to an examination into the habits of the party, whether of eating, drinking, or exposure to vicissitudes of temperature, moisture, or exercise. Ill-regulated diet, imperfect mastication, improper quality of food, irregular hours, and intemperance of drink, are among the most frequent causes; but some form of enteritis, hepatic derangement, or disease of the glandular organs, subsidiary to the digestive apparatus—Bright's disease—*ochlæstis*, malaria, with other agencies, are capable of producing the same result. The votary of opium or alcoholic stimulants is scarcely ever free from this symptom. In returned soldiers, or those addicted to vegetarian theories, it is frequently the result of *scorbutus*. When there is emaciation, a despondent countenance, dark circles around sunken eyes, a sallow, leaden, or sodden skin, a sunken abdomen, a red and pointed, or a loose, pale and flabby tongue—an undue indifference, or an augmented irritability of the nervous system, look out for diarrhoea and its causes.

DIARRHŒEA, DEATHS FROM (Class, ZYMOTIC; Order, *Miasmatic*).—In our art. CHOLERA, ASIATIC, DEATHS FROM, we have given for a series of years the deaths from Diarrhoea. In this we follow the example of the Reg.-Gen. The deaths from this cause in E. and W. are more steadily fatal than those from cholera; yet they present some considerable fluctuations. Over a period of 15 years ending 1864, they averaged 803 p. million of the pop.; thus during that period they were 6 times greater than those from cholera.

No less than 417,499 lives were destroyed by the two diseases in E. and W. in the 20 years 1847-66, viz. 106,299 by cholera and 311,200 by diarrhoea. The deaths to 1,000,000 of pop. in each year from cholera and diarrhoea respectively were—in 1847, 46 and 676; 1848, 110 and 638; 1849, 3034 and 1075; 1850, 50 and 645; 1851, 64 and 833; 1852, 77 and 984; 1853, 244 and 784; 1854, 1094 and 1091; 1855, 45 and 689; 1856, 40 and 734; 1857, 60 and 1111; 1858, 35 and 719; 1859, 45 and 940; 1860, 17 and 494; 1861, 42 and 944; 1862, 25 and 552; 1863, 40 and 735; 1864, 45 and 798; 1865, 62 and 1133; 1866, 685 and 818. The returns for Lond. show that in the 21 years 1847-1867 cholera and diarrhoea caused 88,247 deaths, viz. 34,541 by the former, and 53,706 by the latter, the deaths to 1,000,000 of pop. in each year from cholera and diarrhoea respectively being in 1847, 53 and 898; 1848, 291 and 853; 1849, 6182 and 1705; 1850, 55 and 813; 1851, 90 and 1085; 1852, 67 and 983; 1853, 359 and 1011; 1854, 4288 and 1257; 1855, 58 and 804; 1856, 59 and 866; 1857, 81 and 1181; 1858, 19 and 1759; 1859, 71 and 1211; 1860, 18 and 496; 1861, 60 and 928; 1862, 37 and 607; 1863, 55 and 821; 1864, 53 and 981; 1865, 65 and 1206; 1866, 1842 and 1036; 1867, 78 and 954.

In 1867 the deaths from Diarrhoea were: males, 10,396; females, 9455. Of the males 8912, and of the females 7670, were under 5 years of age; after that the deaths were few until the more advanced ages of life were reached. Between 65 and 85 they were numerous; and 5 males and 9 females died at ages over 95.

Dr. Farr, in 34th Rep. of Reg.-Gen. [abstracts of 1871], says:—"Since the year 1865, Diarrhoea has been unusually fatal. The cholera epidemic of 1866 was preceded and followed by epidemics of Diarrhoea: and as cholera was propagated through the waters polluted by its specific matter in rivers and wells, it is prob. that Diarrhoea is distributed through the same medium."

The mort. experience of the different L. offices hardly furnishes sufficient instances of deaths from this cause to become the groundwork of any comparison. In the returns of the *North British L.*, as prepared by Dr. Burt, M.D., for the 37 years 1827-60, there are 20 deaths as from Diarrhoea. The average duration of life after ins. was 12 years, the average expec. 22.88 years. The average per-centage of total mort. 1.53.

DIARY FEVER [EPHEMERA] (from *dies*, a day).—The simplest form of fever, distinguished by Dr. Fordyce as *simple fever*; it has one series of increase and decrease, with a tendency to exacerbation and remission—for the most part appearing twice in twenty-four hours.

DIATHESIS (from the Greek, *a placing in order*, disposition).—Constitutional disposition, as the rheumatic, the scrofulous, the hæmorrhagic, the calculous.—*Hoblyn*.

DIATHETIC DISEASES.—This class is divided into two Orders; at the head of the first is gout, at the head of the second scrofula. They are connected, to some extent, with the dietetic order of the first class: for gout is usually caused by luxurious living, and scrofula by defective dietary. But in other diseases of this class, such as cancer and phthisis, the seeds of disease appear to be often inborn; and it is certainly impossible to trace, at present, their origin to external agencies.—Dr. Farr, in 32nd Rep. of Reg.-Gen. (pub. 1871). He continues:—"All these inquiries, however, are still in their infancy."

DIATHETIC DISEASES, DEATHS FROM.—These rank as Order 1 of the Class CONSTITUTIONAL DISEASES, and embrace gout, dropsy, cancer, noma, mortification, five forms in all, each of which is spoken of under its proper head. The deaths from this order of diseases in England vary very little, and steadily increase with the pop. In 1858 they were 16,790; in 1862, 16,412; in 1867, 17,520. Over an average of 15 years ending 1864, they were 878 to each million of the pop. living.

The deaths of 1867 were thus divided: males, 6728; females, 10,792. Of the males 262 died under 1 year, and 529 under 5; 115 between 5 and 10; 73 between 20 and 25; 904 between 45 and 55; 1619 between 65 and 75; and 176 between 85 and 95. Of the females 238 died under 1 year, and 541 under 5; 104 between 5 and 10; 128 between 20 and 25; 1941 between 45 and 55; 2310 between 65 and 75; and 14 above 95.

DICKIE, HENRY DAVID, was for many years Gen. Man. of the *Caledonian* Ins. Co. He was for half a century an official of that Co., and retired in 1861. He died in 1863.

DICKIE, WILLIAM, was first Sec. of *Caledonian*, in 1805, and remained in that position for some years.

DICKINSON, R. W., in 1828 proposed to use salt water for extinguishing fires, and suggested that a reservoir of brine should be kept in readiness at the different waterworks with this view. [FIRE ANNIHILATORS.]

DICKSON, THOMAS G., was Act. of *Mercantile L.* and Guarantee in Edin. in 1844.

DICKSON, WILLIAM, was Sec. of *Edinburgh L.* for many years down to 1867.

DICTIONARY OF DECISIONS IN INS. CASES.—A work under this title is in course of preparation by the present writer. It will be arranged on a plan which, it is hoped and believed, will make it a thoroughly effective work of reference.

DICTORES.—Arbitrators; hence *dictum*, an arbitrament; an award.

DICTUM.—A casual or extra-judicial opinion delivered by a judge.

DIET (from the Greek, *regimen*).—The food proper for invalids. *La diète*, used by the French physicians, means extreme abstinence. With us the term signifies nearly the same as *hygiène* and *regimen*. [FOOD.]

DIETETICS.—That part of medicine which relates to the regulating of the diet and regimen.

The term is synonymous with *hygiène*.—*Hoblyn*.

DIETIC DISEASES, DEATHS FROM.—These rank as Order 3 of the Class ZYOTIC DISEASES, and embrace privation, want of breast milk, purpura, and scurvy, and alcohol, the latter embracing delirium tremens and intemperance, or four distinct forms, each of which is spoken of under its proper head. The deaths in England from diseases of this Order fluctuate but very slightly, increasing with the pop. In 1858 they were 2112; in 1862, 2149; in 1867, 2760. On an average of 15 years ending 1864, the deaths averaged 106 to each million of the pop. living.

The deaths in 1867 were thus divided: males, 1687; females, 1073. Of the males 857 died under 1 year, and 937 under 5; 8 died between 5 and 10; 24 between 20 and 25; 172 between 45 and 55; 58 between 65 and 75; and 2 over 85. Of the females 666 died under 1 year, and 748 under 5; 14 between 5 and 10; 15 between 20 and 25; 67 between 45 and 55; 31 between 65 and 75; and 1 between 85 and 95.

DIFFERENCE OF AGE.—In the earlier life offices the same rate of prem. was charged for the ins. of lives, quite irrespective of age. A scale of prem. differing with the difference of age could only be constructed equitably on the basis of a Mort. T. The *Equitable* was the first ins. asso. which used tables of prem. adjusted to differences in age.

DIFFERENCE ENGINE.—See CALCULATING MACHINES.

DIFFERENTIAL CALCULUS.—The name by which one of the most important branches of the higher mathematics is usually designated, and in which magnitudes are contemplated as susceptible of *continuous* growth.

The differential calculus, although invented by Leibnitz, was reduced to a systematic form and greatly extended by the celebrated brothers James and John Bernouilli. Some years, however, before Leibnitz fell on the discovery, the method of *Fluxions*, with which the differential calculus agrees in every respect, excepting its notation and the manner in which the principles are usually explained, had been invented and applied by Sir Isaac Newton. This circumstance gave rise to a dispute, which, after the personal disputants had passed away, was long carried on with great acrimony between the mathematicians of England on the one hand, who put forward the claims of Newton for the honour of the invention, and those of France and Germany on the other, who gave the merit of it to Leibnitz. It was estab. beyond doubt that Newton was in possession of his method before it had been thought of by Leibnitz: the only question was therefore whether Leibnitz received such hints or information respecting the nature of Newton's method as were sufficient to guide him to its discovery. Of this there is no evidence, and extremely little probability; accordingly mathematicians have long agreed to recognize the claims of Leibnitz as an independent inventor.—Brande's *Diet. of Science*.

Newton invented the method of Fluxions about 1665. There have been numerous subsequent writers on that subject. Lacroix has long since glanced at the differential and integral calculus as essentially a calculus of averages; and the calculus itself has already been often employed in connexion with life contingencies in England, as by De Moivre, Waring, Young, Gompertz, Lubbock, De Morgan, Galloway, Edmonds, and indeed by

the present writer himself in his last pub. on Life Contingency Tables.—E. J. Farren, *On the Improvement of Life Contingency Calculations—Assu. Mag.* vol. v. p. 194.

In vol. v. of *Assu. Mag.* (1855), there is a letter from Mr. Farren : *On the Application of the Differential and Integral Calculus to Interest Questions*. After giving an example supplied by Prof. De Morgan in support of his position, he says : “A more striking instance, perhaps, could not have been given of how completely the calculus adapts itself to the investigation of even the commonest assumptions in actuarial subjects, and thus enables us to ascertain the exact conditions with which such assumptions are really connected.”

De Morgan, in the *English Cyclo.*, says : “It is impossible, in the smallest degree, to exhibit the present state and uses of a science into which all others merge as the student approaches the higher application of mathematics”—meaning, impossible in the space of a condensed article. He adds : “In the meanwhile, seeing that notions as to the most proper and useful basis on which to build this science are far from being fixed, the most advantageous course which we can here adopt is to give a short account of the various systems which have been proposed.” We refer our readers to the art. in question ; being barely able here to afford space for a simple enumeration of the writers upon the subject.

The following is a more complete list of the works and publications on the calculus than any we have yet seen :

- 1702 Analysis *Æquationum Universalis*. Joseph Raphson. *Lond.* 4to.
- 1718 De calculo fluentium libri duo quibus subjunguntur libri duo de optica analytica. J. Craig. *Lond.* *Very scarce.*
- 1722 Harmonia Mensurarum : accedunt alia Opuscula Mathematica. Rog. Cotes. *Cantab.* 4to.
- 1725 Eclaircissement sur l'Analyse des Infiniment Petits. P. Varignon. *Paris.*
- 1740 De Malves, usages de l'analyse de Descartes pour découvrir, sans le secours du calcul différentiel, les propriétés ou affections principales des lignes géométriques de tous les ordres. J. P. Gua. *Paris.*
- 1755 Institutiones Calculi Differentialis. Leon Euler. *Petrop.* 4to.
- 1762 Miscellanea Analytica de *Æquationibus Algebraicis et Curvarum Proprietatibus*. Ed. Waring. *Cant.* 4to.
- 1764 Tractatus de Summatione et Interpolatione Serierum Infinitarum. Jac. Stirling. *Lond.* 4to.
- 1767 Arithmetic of Infinites, and the Differential Method ; illustrated by examples. Wm. Emerson. *Lond.* 8vo.
- 1768 Elémens du Calcul Intégral. Thomas Le Seur, et François Jacquier. *Parme.* 4to.
- 1768–70 Institutiones Calculi Integralis. L. Euler. *Petrop.* 4to.
- 1771–2 Institutionum Analyticarum, pars I et 2. Car. Scherffer. *Vind.* 4to.
- 1772 Proprietates Algebraicarum Curvarum. Ed. Waring. *Cant.* 4to.
- „ Instructions for the School of the Dublin So. under the direction of Joseph Fenn, heretofore Prof. of Philosophy in the University of Nantes. *Dub.* 1772. 4to. “This work is perhaps the first which introduces into our language the notation of the Differential Calculus.”—De Morgan, 1852.
- 1776 Meditationes Analyticae. Edward Waring. *Cant.* 4to.
- 1779 Mathematical Tracts, including the Doctrine of Combinations, etc. W. Emerson. *Lond.* 8vo.
- 1783 Opuscula Analytica. L. Euler. *Petrop.* 4to.
- 1787 Institutiones calculi differentialis cum ejus usu in analysi finitorum ac doctrina serierum. Euler. *Ticini.*
- 1796 Traité de Calcul Différentiel et de Calcul Intégral. J. A. J. Cousin. *Paris.* 4to.
- 1797 Introductio in Analysin Infinitorum. L. Euler. *Lugduni.* 4to.
- „ Théorie des Fonctions Analytiques. J. L. Lagrange. *Paris.* 4to.
- 1798 Traité de Calcul Différentiel et de Calcul Intégral. Ch. Bossut. *Paris.* 8vo.
- 1800 Traité des Différences et des Séries : faisant suite au “Traité du Calcul Différentiel et du Calcul Intégral.” S. F. Lacroix. *Paris.*
- 1801 Analytical Institutions, translated by J. Colson. *Lond.* 4to.
- 1803 Principles of Analytical Calculation. Robert Woodhouse. *Camb.* 4to.
- 1804 Sur le rapprochement de la théorie des fonctions analytiques ou du calcul des dérivations, avec la théorie du calcul différentiel développée par la méthode des limites en prenant pour exemple le théorème de Taylor. Paul de Soulima. *Göttingue.*
- „ Supplemento agli elementi di algebra di P. P. *inedito* ; esposizione dei principi del calcolo differenziale secondo il metodo di Lagrange e Pietro Paoli. *Pisa.*
- 1806 Traité Élémentaire de Calcul Différentiel et de Calcul Intégral. S. F. Lacroix. *Paris.* 8vo.
- „ Leçons sur le Calcul des Fonctions. J. L. Lagrange. *Paris.* 8vo.
- 1810 Treatise on Isoperimetrical Problems, and the Calculus of Variations. Robert Woodhouse. *Camb.* 8vo.
- 1812 Théorie analytique des Probabilités. Pierre Simon Laplace. *Paris.* 4to.
- The Differential Calculus—The Integral Calculus. Art. Pure Science : *Ency. Metropolitana.* Arnaud Levi, F.G.S.

- 1814 Essai sur un nouveau mode d'exposition des principes du calcul différentiel suivi des quelques réflexions relatives aux divers points de vue sous lesquels cette branche d'analyse a été envisagée jusqu'ici, et en général, a l'application des systèmes métaphysiques aux sciences exactes. Servole. *Nismes*.
- 1816 Elementary Treatise on the Differential and Integral Calculus. From Lacroix. *Camb.*
- 1819 A Comparative View of the Principles of the Fluxional and Differential Calculus. D. M. Peacock.
- 1820 A Collection of Examples of the Application of the Differential and Integral Calculus. *Ibid.*
- 1825-28 Syllabus of the Differential and Integral Calculus. Pt. 1, 1825, pt. 2, 1828.
- 1827 Della vera esposizione del calcolo differenziale. Carlo Conti. *Padova*.
- 1831 An Essay on Algebraic Development, containing the principal expressions in Common Algebra, in the Differential and Integral Calculus, and in the Calculus of Finite Differences. Thos. Jarrett. *Camb.*
- 1834 An Elementary Treatise on the Differential and Integral Calculus. Rev. Thomas Grainger Hall. *Camb. and Lond.* 8vo.
- 1837 Traité Élémentaire de Calcul Différentiel et de Calcul Intégral. Cinquième édition, revue, corrigée et augmentée. S. F. Lacroix. *Par.* 8vo.
- 1837 The Theory of the Differential and Integral Calculus derived synthetically from an original principle. John Forbes, D.D. *Villafeld.*
- 1839 Réflexions sur la Métaphysique du Calcul Infinitésimal. L. N. M. Carnot. *Paris.* 8vo.
- 1840 Résumé des Leçons d'Analyse données à l'Ecole Polytechnique. M. Navier. *Paris.* 8vo.
- 1841 Traité Élémentaire de la Théorie des Fonctions et du Calcul Infinitésimal. M. Cournot. *Paris.* 8vo.
- 1842 The Differential and Integral Calculus. Augustus De Morgan. *Lond. Library of Useful Knowledge.*
- 1840-44 Leçons de Calcul Différentiel et de Calcul Intégral. *Paris.* 8vo.
- 1846 Examples of the processes of the Differential and Integral Calculus. D. F. Gregory. 2nd ed., G. W. Walton. *Camb.*
- 1847 Cours d'Analyse de l'Ecole Polytechnique. M. Duhamel. *Paris.* 8vo.
- Handbuch der Differenzial- und Integralrechnung. Herr Schlömilch. *Greifswald.*
- 1851 Die Reihenentwicklungen der Differenzial- und Integralrechnung. Dr. Oscar Schlömilch. *Dresden.*
- 1852 A Treatise on the Differential Calculus and the Elements of the Integral Calculus. I. Todhunter, M.A. *Camb.*
- 1859 Chinese Translation of Loomis' Analytical Geometry and Differential and Integral Calculus.

No date. Précis de calcul différentiel et de calcul intégral. A. M. Ampère.

DIGEST.—The first collection of Roman laws under this title was prepared by Alfenus Varus, the Civilian of Cremona, 66 B.C.—*Quintil.* The "Digest" so called, by way of eminence, was the collection made by the Emperor Justinian, 529. It constitutes the first part of the Roman law, and the first vol. of the Civil law. [AVERAGE.] [BOTTOMRY.]

The Digest Commissioners, in their first Report, dated 13th May, 1867, recommended the immediate preparation of a Digest of the English Common Law, Statute Law, and Judicial Decisions. The work might have been far advanced by this time; but various frivolous excuses have delayed its being commenced in earnest.

DIGESTION (from the Latin, *to carry into different parts*).—A term employed in various senses. 1. In *Physiology*, the change of food into *chyme* by the mouth, stomach, and small intestines; and the absorption and distribution of the more nutritious parts, or the *chyle*, through the system. 2. In *Surgery*, the bringing of a wound into a state in which it forms healthy pus. Applications which promote this object are called *digestives*. 3. In *Chemistry*, the continued action of a solvent upon any subject, etc., etc.—*Hoblyn.*

DIGESTIVE ORGANS, DISEASES OF THE.—These rank as Order 4 of the Class LOCAL DISEASES, and embrace gastritis, enteritis, peritonitis, ascites, ulceration of intestines, hernia, ileus, intussusception, stricture of intestines, fistula, stomach disease, etc., pancreas disease, etc., hepatitis, jaundice, liver disease, etc., spleen disease, etc., in all 16 enumerated forms. Each of these we speak of under its proper head.

DIGESTIVE ORGANS, DISEASES OF, DEATHS FROM.—The deaths from diseases of this Order in E. and W. vary very slightly. In 1858 they were 19,246; in 1862, 19,412; in 1867, 21,006. Over a period of 15 years ending 1864, they averaged 1015 to each million of the pop. living.

The deaths in 1867 weret hus divided: males, 10,490; females, 10,516. Of the males 1550 died under 1 year, and 2017 under 5; 214 between 5 and 10; 224 between 20 and 25; 1512 between 45 and 55; 1683 between 65 and 75; 617 between 75 and 85; 62 between 85 and 95; and 2 over 95. Of the females, 979 died under 1 year, and 1426 under 5; 216 between 5 and 10; 330 between 20 and 25; 1563 between 45 and 55; 1829 between 65 and 75; 784 between 75 and 85; 96 between 85 and 95; and 3 over 95.

Dr. Fleming, in his *Medical Statistics of Life Assu.*, 1862, reviewing the mort. of the *Scottish Amicable* during the period 1826-60, says :

The mort. among the assu. from Diseases of the Digestive Organs is considerably in excess of that of the general pop. Excluding dropsy, 1144 out of 12,243, being 9'34 p.c., died of these diseases, against 7'32 in the pop. of England. Including a third of the cases of dropsy, the deaths numbered 1374 out of 12,243, being 11'22 against 8'77.

He proceeds to investigate "Diseases of the Liver," which we speak of separately [*LIVER, DISEASES OF THE*], and then remarks generally :

From the above, the important deduction follows, that the assu. as a class are more prone to diseases of the digestive organs, especially the liver, than the general pop. It appears to me that this must mainly be ascribed to their mode of living, and their sedentary and luxurious habits. As before stated, the great proportion of them are in a position to command the comforts and luxuries of life. Do they indulge in these too freely? Do they lead too inactive lives? That they do cannot be an unfair inference from the above statistics of this group of diseases.

There has undoubtedly been a great improvement within the last 30 or 40 years in what are termed "the drinking habits" of the upper and middle classes of society; but in other respects they certainly live more luxuriously, and indulge more in what are commonly termed the pleasures of the table. The present style of living, with its varieties of food and wine, its rich cooking, luxuries, condiments, protracted mode of serving, and late hours, appears as if designed to tempt into excess, and to strain the digestive organs beyond their natural powers or functions. It is rarely necessary to tell any one "to live well," who has the leisure and the means of doing so—most persons so circumstanced "live too well." Professional and commercial men, who for a great portion of their time lead more sedentary than active lives, are in the present routine of social life much exposed and often addicted to excesses and imprudencies in diet. They are more likely to suffer from the consequences than those who may indulge as freely, but whose time and occupations being much at their own disposal lead more active out-door lives. Still, even they do so irregularly, and often pass a large portion of their time, particularly as they advance in life, in activity and luxurious ease. *To these classes the assured chiefly belong*; and the proportion of diseases of the stomach, liver, and digestive organs, is greater among them than among the industrious and labouring portion of the community, whose occupations as a general rule promote digestion and health, and who cannot afford to hurt their constitutions by the undue gratification of their appetites.

Mr. A. H. Smee, in his 2nd Rep. on the "Causes of Death" in the *Gresham L. Office*, pub. 1871, says :

It is curious to observe that diseases of the digestive organs greatly exceed in Eng. the relative number found in other countries, and points to some habit in our mode of living in this country detrimental to the process of digestion; possibly the frequent indulgence of the glass of sherry and biscuit (taken on an empty stomach) may greatly contribute to this result.

It will be noticed that the death-rate from this cause is high among the other Brit. Offices which have pub. their experience.

DIGIT (from the Latin *digitus*, finger).—In arithmetic one of the ten symbols, 0, 1, 2, 3, etc., up to 9, by which all numbers are expressed.

DILAPIDATION.—Decay; a kind of ecclesiastical waste, either voluntary, by pulling down, or permissive, by suffering the chancel, parsonage-house, and other buildings thereunto belonging, to decay. [*ECCLESIASTICAL DILAPIDATIONS.*] [*LEASES.*]

DILAPIDATIONS, INS. OF OR AGAINST.—In 1825 the *Ægis Fire and Dilapidation*, etc., Co. was founded. It was a prominent feature of its bus. to ins. sums to provide for dilapidations under leases for terms of years or for lives. We have given an outline of the scheme in the hist. of that Co.

DILIGENCE.—Care; of which there are infinite shades, from the slightest momentary thought to the most vigilant anxiety; but the law recognizes only three degrees of diligence: 1. Common or ordinary, which men, in general, exert in respect of their own concerns; the standard is necessarily variable with respect to the facts, although it may be uniform with respect to the principle. 2. High or great, which is extraordinary diligence, or that which very prudent persons take of their own concerns. 3. Low or slight, which is that which persons of less than common prudence, or indeed of no prudence at all, take of their own concerns. The Civil Law is in conformity with the Common Law in these respects.—*Story*. [*COLLISIONS AT SEA.*]

DILLON, ANTHONY, J.P., Man. of Lond. branch of *Border Counties Ins. Co.*, by virtue of a recent appointment. Mr. Dillon (who was orig. trained to the bus. of banking) is best known to the Ins. world as the founder of the *Provincial (Welsh) Ins. Co.*, the destinies of which he regulated with success for some years. At the close of 1868 he relinquished the secretaryship of the Co., and became its director in Lond. In 1870 his connexion with the *Provincial* ceased; and he became a director of the *Accident Co.*, of the *Realm Marine*, and others. In 1872 he held a position under the Tariff Committee of the Fire Offices. Mr. Dillon's experience has thus been considerable and varied. In 1869 he pub. a useful little pamph. : *Suggestions for the Continuous Audit of Public Accounts*.

DIMSDALE, MR., was agent in Lond. for *Yorkshire F. and L.* for some years previous to 1851.

DIOCESAN MORTUAL INS. AND FUNERAL ESTABLISHMENT, "Hyde Park House, 12, Edgware-road." All that we know about this scheme is from an announcement which appeared in the public papers, without date [we believe between 1845 and 1852], bearing the name of "Thomas H. Taunton, B.A. Oxon, Sec.," as follows :

The managers, previously to the empowerment of their scheme of Mortual Ins., have entered into arrangements with an estab. and prominent ins. co. for granting pol. to the families of the clergy, learned professions, and others, guaranteeing them against the entire funeral expenses at the death of

their members, by a small monthly, quarterly, or ann. payment, and to provide for the poorer classes a remedy against the temptation and distressing consequences that have arisen from *Benefit Burial Soc.*, and a rescue from the degradation of a pauper funeral, making an extensive reduction in poor rates and parish responsibilities. Four-fifths, or 80 p.c., of the profits of ins. will be returned in money to the survivors immediately after death.

An important feature in this estab. will be to reduce the enormous charges (nearly 200 p.c.) made by a class of tradesmen (undertakers), and raising the so-called trade to the position of a profession, conducted by gentlemen of education and feeling, and under the control of the clergy. Funerals may be arranged in connexion with any of the metropolitan cemeteries or burial grounds at the same economic charges. The olden style of equipage only will be used, the equipments of the best possible description, and those attendants only will be employed whose propriety of demeanour qualifies them to assist in such solemnities. Mortuary chapels are provided for the temporary reception of the dead from hospitals, asylums, and poorer habitations, and where it is necessary for speedy removal. Tables of Mortual Ins., with funeral charges, may be obtained at the chief offices. The tables are those of the *Times* Ins. Office.

We hardly like to apply to this project the designation which first occurred to us on carefully reading the above. We believe it never went forward.

DIORTHOSIS (from the Greek, *a making straight*, as in the setting of a limb).—The restoration of parts to their proper situation; the reduction of a fractured or luxated limb; one of the ancient divisions of surgery.—*Hoblyn*.

DIPSACUS (from the Greek).—A disease of the kidneys, attended with violent thirst.—*Galen*. A name formerly given to Diabetes, from the thirst accompanying that affection.

DIPSOMANIA (from the Greek, signifying *thirst-madness*).—A form of partial moral mania, inducing a propensity to drunkenness. Hence *Dipsosis*, morbid thirst; excessive or impaired desire of drinking. [INTEMPERANCE.]

DIPHThERIA.—A Disease of the ZYMOTIC Class, Order *Miasmatic*. It is an inflammation of the *trachea*, with some complications. Bretonneau speaks of this peculiar disease as incidental with croup, arising from the same causes, and requiring the same treatment. Dr. Farr says it is evident that down to 1858 it was confounded with *Cynanche*. [CYNANCHE.]

Diphtheria in its modern phase began to be prevalent in Cornwall in the autumn of 1855. Many indications of the previous appearances of a disease of the kind are found in medical history. Nay epidemics of diphtheria are clearly described in the 17th century by Italian and Spanish writers. Some obscurity, however, hung round its hist.; and in Fothergill's account, which Sprengel properly designates classical, the symptoms are confused by the introduction of the eruption of scarlatina into his description. With that disease, with quinsy, and with other phlegmous affections of the throat, as well as with croup, diphtheria, which is a better name than *angina membranacea*, was often confounded; and its frequent association with scarlatina in epidemics justifies the inference that the *diphtherine*, its *materies morbi*, is some modification of *scarlatinine*.—Dr. Farr, in 22nd Rep. of Reg.-Gen., pub. 1861.

Diphtheria or *Diphtherite*, says Dr. Guy, in *Public Health*, 1870, is evidently to be counted among the prevalent and fatal epidemics of the 16th century. It broke out in Holland in 1517, and was therefore contemporary with our sweating sickness of that date. It was an infectious inflammation of the throat, which often destroyed life in less than 24 hours. It set in with symptoms of cold, soon followed by inflammation of the lungs, with high fever. Those who ultimately recovered got well slowly. The disease appears to have made a very sudden onslaught, and to have passed away in the short space of eleven days. It broke out again in 1557 at Alkmaar, where it destroyed 200 people in a few weeks, and laid more than 1000 people on their backs in a single day. It has of later date been called Boulogne sore-throat, from its prevalence there.

Dr. Stark, in the 5th Rep. of Reg.-Gen. for Scotland [returns 1859], after remarking that Diphtheria caused 415 deaths in Scotland during that year, being at the rate of 14 deaths in every 100,000 of the pop., gives the following interesting hist. of its progress there:

This disease first showed itself in Scotland in 1857, as it did also in England, and increased and spread along with an epidemic of scarlatina. It is very important to note this fact, inasmuch as these two diseases seem to be most intimately related, if not varieties of one another; and so far as yet traced, seem to be under the same yet unknown atmospheric agencies. Thus, in Scotland at least,—for the disease was not distinguished in the English T. till 1850,—when the epidemic of scarlatina was not widely extended, nor very fatal, the cases of Diphtheria were few; but in proportion as the epidemic of scarlatina increased in prevalence and fatality, so did Diphtheria. Thus in 1857 the deaths from S. amounted to 2235; those from D. to 76. In 1858 the S. deaths numbered 2671; and those from D. rose to 294. In 1859 the deaths from S. increased to 3614, while the deaths from D. rose to 415. From the supplemental T. pub. by the Reg.-Gen. of Eng. in 1863, it appears that D. in Eng. manifested a like rise during these years, inasmuch as only 310 deaths therefrom were recorded in 1857, while 4836 occurred in 1858, and 9587 deaths from D. in 1859. From these facts, then, it seems reasonable to conclude that the same unknown atmospheric agencies which favour the development and spread of S., also favour the development and spread of D.; and the same cannot be said of any two of the other epidemics, so far as yet obs., if we except diarrhoea and cholera, which differ in degree rather than in kind.

Dr. Simon, the medical officer of the Privy Council, in his 2nd Rep., pub. 1860, says:

During the last 4 or 5 years there have been prevailing in various parts of England alarming epidemics of Diphtheria—a disease which, as epidemic, was previously almost unknown to the present generation of medical practitioners. Not quite unknown indeed; for although the last great prevalence of the disease in Brit. was during the two middle quarters of last century, there had been since that period, and within living recollection, a few little local epidemics, as well as some isolated cases. But from the summer of 1855 to the present time, Diphtheria has again been continuously prevalent in England: invading different places in succession; sometimes remaining fixed (even 3 or 4

years) where once its footing has been gained; sometimes holding less tenaciously to the place, and leaving it after only some few weeks' tenure; but unfortunately also returning to it again and again. These facts have been made known to the Privy Council; and in consequence, during the past year, extensive inquiries have been made under Orders of the Privy Council, with a view to collect for common use the various particulars of experience which different localities could supply.

Then follow in detail the various reports presented to the Council.

Dr. Stark says in the 8th Rep. of Scottish Reg.-Gen., pub. 1866:

Since Diphtheria made its appearance in Scotland in 1857, it has steadily but slowly increased, and has from the very beginning shown the peculiarity that it has prevailed to a much larger extent in the sparsely populated rural districts than in the towns. Even during the year 1862, of 997 deaths from Diphtheria, only 360 occurred in the town districts, but 620 in the mainland-rural districts, and 20 in the insular.

Dr. Fleming, in his *Medical Statistics of Life Assu.*, 1862, says:

This disease appears to be becoming estab. in this country; and though very fatal among children, it does not seem to attack adults frequently, so that I do not suppose the mort. among the assured is likely to be much affected by it.

Dr. Farr, in Supp. to 25th R. of Reg.-Gen. pub. 1864, says of diphtheria, it has "*now taken its place among the fatal diseases of England.*"

Dr. Adams Allen, in his *Medical Examinations for Life Ins.*, says:

Diphtheria, aside from its immediate danger, may lay the foundation of *tuberculosis*; may be followed by *albumenuria*, or dropsical effusions, or more or less permanent *paralysis*. It is not usually mentioned in the list of diseases about which the party is questioned, but its grave sequelæ entitle it to thorough consideration.

DIPHTHERIA, DEATHS FROM (Class, ZYMOTIC; Order, *Miasmatic*).—The deaths from this cause in England fluctuate considerably. Up to the year 1858 they were included with those from Scarlatina in the reports of the Reg.-Gen. In 1859 they were separated; and since that date they have been as follows: 1859, 9587; 1860, 5212; 1861, 4517; 1862, 4903; 1863, 6507; 1864, 5464; 1865, 4145; 1866, 3000; 1867, 2600; thus ranging from 492 p. million of pop. living in 1859, down to 227 in 1861; then up to 320 in 1863, down to 123 in 1867. On an average of 5 years ending 1864, they were 264 p. million.

The deaths of 1867 were: males, 1250; females, 1350. More than half took place under 5 years; a considerable proportion between 5 and 10. They continue in decreasing numbers down to ages 65–75; and 4 males died over 75.

The following T. shows the *Deaths in E. and W. from Diphtheria and Cynanche Maligna, at different Ages, in each of the 17 Years 1855–71.*

Years.	All Ages.	Under 1 Year.	1–	2–	3–	4–	Under 5 Years.	5–	10–	15–	25–	35–	45–	55–	65–	75–	85–	95 and upwards.
1855	385	56	52	47	45	33	233	84	17	20	8	7	8	7	1	...	...	...
1856	603	44	62	81	54	57	298	175	65	33	11	11	6	4	3	...	...	...
1857	1583	109	138	137	152	160	696	512	224	86	31	19	8	...	...	1	...	...
1858	6060	552	741	692	695	635	3315	1897	686	361	134	80	56	42	26	7	2	...
1859	10184	878	1122	1103	1116	1081	5300	2751	1091	536	213	122	69	50	37	11	4	...
1860	5212	448	558	500	621	551	2678	1413	542	321	79	60	43	30	17	14	...	...
1861	4517	361	528	501	507	471	2368	1217	419	258	93	60	41	35	16	10	...	...
1862	4903	412	645	594	500	513	2724	1242	432	264	91	54	39	29	18	9	1	...
1863	6507	585	903	744	813	664	3709	1651	515	291	121	78	61	48	27	6	...	...
1864	5464	527	694	681	661	535	3098	1292	425	300	130	82	60	46	26	4	1	...
1865	4145	387	518	459	476	446	2286	1053	328	227	95	43	41	38	20	11	3	...
1866	3000	282	420	404	355	296	1757	706	194	135	71	44	38	27	21	6	1	...
1867	2600	293	371	306	316	236	1522	651	146	114	61	29	31	21	19	4	2	...
1868	3013	299	431	363	331	325	1740	740	200	79	60	58	45	32	34	13	3	...
1869	2606	274	324	276	311	296	1481	650	189	106	55	42	34	26	13	10	...	...
1870	2609	301	332	287	300	238	1458	722	214	118	58	46	26	20	14	3	...	...
1871	2525	227	311	270	330	286	1424	644	182	108	57	36	33	22	25	4	...	...
Total.	66,552	6035	8150	7445	7643	6823	36,096	17,400	5889	3357	1365	880	639	489	307	113	17	...

DIRECT AND SOLE CAUSE OF DEATH OR DISABILITY.—The various asso. which insure compensation in case of death or disablement resulting from accidental injury are obliged, as the result of experience, to frame their conditions with great exactitude. The *accident* must be primary; the disability or death must be caused solely and directly by the *accidental injury*, in order to entitle the insured to claim. This is in accordance with the intent and meaning of the contract. If the cos. were not strict upon this point, they would sustain endless frauds. Instead of running the risk of accident only, they would have to encounter the risk of enfeebled health, and dilapidated constitutions: disease in all its varieties would creep in. In such case medical examination before acceptance would be necessary: the expense and delay of this would seriously affect the development of the bus.

The accident cos.—the well-managed ones—shut out all *secondary* causes from their pol., such as gout, hernia, erysipelas—why not *Pyæmia*?—and all natural causes, as fits, sunstrokes, apoplexy, rheumatism, spitting of blood, etc., etc. To a person subject to gout, even the slightest injury may awake into activity this latent disease. Sudden

exertion will produce hernia in those predisposed thereto. A scratch may superinduce erysipelas : but it was in the system previously ; or perchance may be conveyed in dressing the wound—especially if this take place at a public hospital. But these have no necessary connexion with the accidental injury ; they occur, say, once in 500 cases of injury, and are dependent upon the constitution and circumstances of the individual injured. So a fit may occur while a person is bathing, or on horseback ; accidental injury may actually follow ; but the primary or moving cause was the fit—and that is the risk *not* insured against.

Mr. G. D. B. Beaumont, in his *Law of F. and L. Ins.*, 1833, put the matter very happily, before accident ins. in its modern phase was thought of : “Death,” he said, “may be occasioned by mortification ensuing upon cutting a corn to the quick, but such an effect is not the natural and immediate consequence of cutting a corn ; the effect is rather referrible to improper treatment or neglect.” [DISABILITY.] [ERYSIPELAS.] [FITS.] [GOUT.] [HERNIA.] [SECONDARY CAUSES.] [SUNSTROKES.]

DIRECTION.—The rule and law of a case given by a judge to the jury.

DIRECTOR.—A superintendent ; one who has the general management of a scheme, design, or speculation.

DIRECTORS.—Directors are persons appointed or elected, according to law or usage, for the purpose of directing the affairs of a corp. or co. The whole of the directors collectively, or a certain defined majority of them, constitute the “Board of Directors,” in which the executive power vests.

It is an essential part of the practical organization of an ins. asso. that there should be a board of directors ; but as a rule the smaller the board, the more harmonious and effective the working of the office. It is not expected of directors as a rule that they should bring scientific acquirements to bear upon the subjects which come before them. Their real value consists in their general business knowledge and experience, which enables them to take a clear practical view of the questions before the board, apart from the technical considerations which it is the duty of the officials of the office to consider and represent, but which it is not always wisdom on the part of the co. rigorously to enforce.

Mr. C. Jellicoe, while under examination before the Select Parl. Committee in 1853, put the matter, with his usual sagacity, in this form :—“The public generally, or that section of it which composes a board of directors, are in many cases not at all aware of the elements on which the whole thing is constituted.” Perhaps in nothing is the judgment of directors more beneficial than in that of the investments of the asso. Their individual experience then becomes of great value. Where the bus. of the co. embraces the acceptance of any special life risks, a medical director, or even several, may be of great value, not to say indispensable. The legal element at a board—provided there be not too much of it—is very valuable. In the case of F. offices, directors who can influence bus. of the class sought by the asso. are valuable ; while in Marine Ins., not only may bus. be largely influenced by the directorate, but the heavy moral hazard which attends this class of bus. may be to a large extent guarded against.

The appointment of directors, their qualifications, their remuneration, and their removal, will in all cases be governed by the regulations of the particular co. Where there are no regulations applicable to the object immediately in view, or where the regulations are insufficient, the general principles of the law must be acted upon.

It will be convenient from this point to speak of Directors under several general heads—as their “Duties,” their “Powers,” their “Responsibilities.”

Duties.—The duties of directors, so far as they are formal or administrative, are usually defined in the Charter, D. of Sett., Act of Parl., or Art. of Asso. Beyond these there is a general or implied duty to protect the best interests of the asso. ; to bring ordinary bus. knowledge to bear upon the conduct of its affairs ; and to be no party, voluntarily, to any act or decision by which its interests may suffer, or be placed unduly in jeopardy. In other respects their duties, as also their responsibilities, are governed by their powers. As between themselves and the other members of the asso., the directors are bound to follow the provisions of the deed ; although in matters of internal management a very considerable discretion is vested in them. “The directors of a public co.,” says Mr. Bunyon, “are moreover considered to accept their office as trustees for the benefit of the shareholders, and with corresponding duties and liabilities. Having duties of a fiduciary nature to perform, they are bound to make them predominant over their personal interests, and cannot enter into any contracts for profit with the office, at least without the authority of a general meeting, except ordinary ins. contracts, which are usually provided for, either expressly or by implication, by the deed requiring them to hold at least a certain amount of ins.”—*Law of Life Ins.*

Powers.—The powers of directors, like their duties, are almost invariably defined in the constitution of the co. In a simple trading partnership every partner is the implied agent of all the partners ; but in joint-stock cos. the management is necessarily limited to a few ; these exercise the delegated power of the whole in some restricted or specified form. Their acts are binding upon the asso. either by virtue of express authorities contained in the deed, or of the implied authority resulting from their position as

Directors. They are thus special rather than general agents, and cannot bind the co. beyond the limits of their authority. Mr. Bunyon says hereon:—"But assuming the force of the modern doctrine [as we have just stated it], and that 'all persons dealing with a co. must take notice of the deed and of the provisions of the Act, and that if they do not choose to acquaint themselves with the powers of the directors it is their own fault,' there must be some limit to it, or there would be no safety to the public in dealing with these asso. One limit is to be found in the doctrine, *omnia præsumuntur rite esse acta* [all acts are presumed to be rightly done], and hence, when the transaction is authorized by the articles and apparently regular, no undisclosed regularity will affect a stranger." We propose to quote several cases in elucidation.

In the case of *Prince of Wales Ins. Co. v. Harding* [Off. Man. of *Athenæum* L. Assu. Co.], 1857, the facts were these:—The D. of Sett. of the last-named Co. was comp. regis. under the 7 & 8 Vict. c. 110. It was provided by the 20th clause of this deed that the common seal should not be affixed to any pol. except by order of 3 directors, signed by them, and countersigned by the man.; and by clause 28 that every pol. should be given under the hands of not less than 3 of the directors, and sealed with the common seal. By clause 101 the books containing the proceedings of the general meetings, and of the board of directors, were to be open to the inspection of shareholders. A pol. was executed, sealed with the common seal, and signed by 3 directors, one of whom was the man.; but there was no previous order made as required by the 20th clause. The Co. in discussion with the insured treated the pol. as effective, but afterwards repudiated it on the ground of informal execution:—*Held*, that the liability on the pol. could not be repudiated on the ground that the execution was not authorized.

In *King v. Accumulative Life*, 1857, the facts were as follow: The D. of Sett. entitled pol.-holders to participate in profits; and also contained provisions enabling the directors in certain events to dissolve the co. Pol. were issued in which it was provided that the cap. stock and other securities, funds and property of the co. remaining at the time of any claim or demand unapplied and undisposed of, and inapplicable to prior claims and demands, in pursuance of the provisions of the D. of Sett., should alone be liable to answer and make good all claims and demands upon the co. or otherwise, under or by virtue of that pol.; and that no director, officer, or shareholder, should be individually or personally liable. The directors took steps to dissolve the co., and trans. its funds and property to another co., who were to take their liabilities; but these steps were not taken in strict accordance with the powers of the directors. King, who had effected a pol. "upon and for 20 years' continuance of the life of himself," brought an action against the co., charging them with having wrongfully alienated and trans. their property, and ceased to carry on bus., whereby he lost the moneys and profits he would otherwise have made from the continuance of the contract:—*Held*, first, that there was no implied contract on the part of the co. to continue to carry on the bus. *Held*, secondly, that if there was, there was no evidence of any breach of it, inasmuch as if the trans. was properly made, there was no cause of action; and if not warranted by the D. of Sett., it was *ultra vires* and void. *Held*, thirdly, that the pol.-holder had commenced his action before he had sustained any injury.

In the *Athenæum* Life v. *Pooley*, 1858, the facts were these. The Co. was constituted by D. of Sett. for the purpose of purchasing, selling, and reselling life, reversionary and other personal estates and interests, and of advancing money by way of loan on personal security, and generally of carrying on the bus. of life ins.; and of annu., loan, and rev. int. so. The directors were empowered by such deed, at their own absolute discretion, and in the usual and ordin. course of bus. of the so. to lay out, invest, or advance at int. on Gov. securities, or on such personal or other security as they should think fit and advantageous, and they lawfully might, such moneys, or such parts of the moneys and funds of the so., as they should think expedient:—*Held*, that the purchase by the directors of such so. of Westminster Improvement Bonds was not within their powers.

In another case, arising out of the winding-up of the same Co.—*Athenæum* L.—it was *held*, that a memorandum signed by 3 of the directors, but not under the seal of the Co., stipulating that on payment of certain premis. the So. would guarantee an ins. therein mentioned, and would issue when required a stamped pol. in the form authorized by the D. of Sett., was binding upon the general body of the shareholders, and created a good equitable debt.

In *Hambro v. Hull and Lond. F. Ins. Co.*, 1858, the facts were these:—The Co. was completely regis. under 7 & 8 Vict. c. 110. The D. of Sett. gave the Co. power to transact all the branches of bus. usually appertaining to *Marine* Ins., and required that in every pol. the funds of the Co. should alone be made liable. The Co. had a seal with their name of incorp. on it. For *Marine* Ins. the directors appointed an agent to issue pol. The *Marine* pol. were headed "Hull and Lond. *Marine* Assu. Co.," and were signed by the agent by order of the board of directors. They had a stamp upon them, "Hull and Lond. *Marine* Assu. Co." They contained no stipulation that the funds of the Co. should alone be liable. In an action on one of these pol.,—*Held*, first, that the H. and L. F. Ins. Co. was not liable on such pol., because neither the directors nor any one else had authority to enter into such engagements on behalf of the Co. as these pol. purported to create; and

there neither was nor could be any evidence that the signing of such pol. by an agent in a name not that of the Co. was in accordance with the usual mode of conducting the bus. of a partnership such as the Co.'s or within the scope of the ordin. authority of the directors or agents of such Co. *Held*, secondly, that no action lay against the *Hull and Lond. Fire Ins. Co.* on an adjustment of losses on such pol.

In the *Era Assu. Co.*, Ex parte Williams, 1860, the facts were these: This Co., whose bus. was F. and L., purchased the bus. of a life ins. co., taking all the assets and undertaking all the liabilities:—*Held*, that in the absence of any special power in their D. of Sett., the transaction was *ultra vires*; that securities under the seal of the purchasing co. given, in carrying out this arrangement, to creditors of the selling co., were void; and that such creditors were not entitled to prove against the purchasing co., which was in course of winding up.

In *Trew v. Railway Passengers Assu. Co.*, 1860, the facts were these: The pol., which was against injuries caused by accident or violence, contained a proviso that no claim should be made under it in respect of any injury unless the same should be caused by some outward and visible means, of which satisfactory proof could be furnished to the directors:—*Held*, that this must be understood to mean such proof as a Court of Justice would determine *ought to be satisfactory to the directors*.

In *Manby v. the Gresham Life*, 1861, the circumstances were these: The Co. undertook, upon being satisfied that the causes which orig. led to the assessment of a higher prem. upon the life insured were removed, to reduce the prem. to that upon an ordinary life:—*Held*, that a Court of Equity will not interfere with the discretion of the Directors, exercised *bonâ fide*, to compel them to perform their contract.

In *Aldebert v. Leaf* [Chairman of *Argus Life*], 1864, by the provisions of the D. of Sett., the directors were bound upon a dissolution to set aside sufficient funds out of the assets of the co. to meet existing engagements:—*Held*, that an agreement for the trans. of the bus. without making such a provision was *ultra vires*.

In the *Waterloo Life*, Ex parte Carr, 1864, the circumstances were these: The D. of Asso. which bound the pol.-holders contained a power to dissolve, and thereupon the directors were to get from another co. an undertaking to pay all future liabilities, and to trans. to such co. so much of the funds as should be agreed on between the contracting parties as being sufficient to enable the latter co. to comply with their undertaking:—*Held*, that the amount to be paid over was a matter of agreement between the two cos., with which the pol.-holders had no concern; and that a pol.-holder who refused to be trans. had no claim upon the *Waterloo Co.*

In *Penny v. the Gresham L.*, 1872, regarding the transfer of shares, the D. of Sett. of the asso. (clause 17) provides that any shareholder shall be at liberty to sell and transfer his shares to any other person who shall already be a shareholder, or who shall have been approved as such by the board; and no person not already a shareholder, or the executor, administrator, legatee, or next-of-kin of a shareholder, shall be entitled to become the transferee of any share, unless approved of by the board. The directors under this power refused to register a transfer without assigning any reason for the refusal. The Master of the Rolls decided that the directors were bound to give some reason for their refusal, and as they had not done so, he ordered the transfer to be regis. The Co. appealed; the Lords Justices *held*, that in a case where it did not appear that the directors had acted otherwise than honestly, the Court of Equity had no jurisdiction to review the exercise of "their discretion, or compel them to disclose their reasons for their disapproval."

Responsibilities.—In *Burnes v. Pennell*, 1849, it was *held*, that if the directors of a public co. agree to pub., either themselves or by their agents, false statements of the affairs of the co., under such circumstances as show a fraudulent intent to deceive, they are not only civilly liable to those whom they have deceived and injured, but may be criminally prosecuted and punished.

In *Taunton v. Royal Ins. Co.*, 1864, the pol. of the Co. expressly excepted any liability for loss by explosion, except in the case of gas. An explosion occurred accidentally by the blowing up of a vessel laden with gunpowder, by which damage was done to buildings ins. with the Co. The directors paid for the damage so done, but they did it *ex gratiâ*, and for the benefit of the Co. On a bill by a shareholder to make them refund the money,—*held*, that this was a matter of internal management, and that having regard to the powers of the directors, and the purposes of the Co., the directors were justified in making the payments; the damage being done by something which, though not within, was analogous to, the risk insured against.

In *Dutton v. Marsh*, 1871, the facts were these:—Four directors of the Isle of Man Slate and Flag Co., Lim., signed their names to a promissory note for £1600 and int. They were described as directors; but there were no words to signify that they were acting "as directors on behalf of the Co." An action was brought in the Q. B. against the directors who signed personally:—*Held*, that the directors were personally liable as the makers of the note; there being nothing in the note itself to exclude this personal liability; and the fact that the Co.'s seal was affixed was not sufficient to show that the note was signed on behalf of the Co.

On this part of the subject we may refer the reader to a definite enactment [FRAUDULENT TRUSTEES ACT.]

The question of what relief may be obtained against the asso. in respect of any misrepresentation made by directors or agents has frequently arisen; but is too technical for discussion here: besides the facts of each case must be judged of individually.

By the Cos. Act, 1867, the art. of asso. of a lim. co. may be so constructed—or altered by special resolution—as to make the liability of directors and managers unlimited, in this manner, (sec. 5) that, in addition to his liability (if any) as an ordinary member, he shall be liable to contribute on the winding-up of such co. as if he were a member of an unlimited co. This shall not apply if he has ceased to be a director or manager for one year or more before commencement of liquidation; nor in respect of any debt or liability incurred after he ceased to hold office. Nor shall it apply at all unless the Court deems it necessary to require such contribution in order to satisfy the debts and liabilities of the co., and the costs, charges, and expenses of winding up. Notice must be given to director or manager on his election that his liability will be unlimited.

General Considerations.—In view of the validity of the proceedings of directors, it is essential that the formalities prescribed by the deed or articles under which the asso. is constituted be observed. Due notice must be given to the directors of the holding of a board meeting, unless a time shall have been previously agreed to. It is also important that the required or agreed quorum of directors be present: the assent of individual directors not being sufficient, unless the regulations of the asso. specifically so provide. It is considered that in such a case the members at large have stipulated for the protection of the collective discretion of at least the required number. Hence, when the deed empowered 5 directors to bind the co., a contract by 3 only was set aside. Where no specific number is named as a quorum, the practice or usage of the particular co. will be relied on. The directors may delegate their powers to committees of one or more, unless the regulations specify otherwise.

Regarding the number of directors to constitute a board, there are generally limits—not to exceed so many, nor to fall below a certain number. It has been held that the specification of numbers is directory only, and that the powers of management are not revoked by any temporary departure from the regulated number. This would undoubtedly depend upon the particular nature of the departure. On the other hand, it has been held that the proprietors are entitled to compel the directors to fill up the vacancies; on the principle that the number of a body of trustees should be kept up. Mr. Bunyon (*Law of Life Ins.*) cites numerous cases bearing upon these points. We do not propose to enter upon them in detail here.

The question of directors receiving their qualifications either by way of loan or gift has from time to time come before the Law Courts, or been made the subject of comment in the Ins. newspapers. The utterances on these occasions have not, speaking generally, been characterized by much profundity. The *Economist* on a recent occasion delivered itself wisely and clearly: "We do not see any harm in directors being paid to qualify, but all such arrangements in starting a co., if good faith is to be kept with the public, should clearly be stated in the prosp." Another solution may be, to keep the qualification within such reasonable limits that business men of limited means will not look upon joining a new co. as a gambling venture, and so be driven to such indemnity.

The American view regarding directors has been expressed with characteristic clearness by that sprightly Ins. paper—the *Chronicle*:

These may be divided into two classes—the indifferent and the different. The indifferent appear to have no thought of any responsibility as connected with their positions. They are either absent from the board rooms on the day of meeting, or lounge in carelessly, indorse good-naturedly whatever may be done by the officers, and get away as soon as possible to attend to their own affairs. The different class is composed of men who are either excessively vain, or thoroughly conscientious—usually the former. The practical result is nearly the same in both cases. They are possessed with the idea that they are personally responsible for everything that is done by, or happens to, the co. Usually as ignorant of the principles of underwriting and of the practice as they are of the Sanscrit language, their desire to render service, or to display their own importance, as the case may be, takes the form of petty inquisitiveness and meanness. They peer into all the details of expenditure, growl at the salaries paid the clerk and office boy, at bills for printing and stationery,—in short, magnify every dollar paid out for necessary service or appliances, and wind up by proposing to reduce the office help, and cut down the agents' commissions.

We cannot wholly indorse this view in regard to Brit. Ins. Asso. [FRAUD.] [MIS-REPRESENTATION.] [NOTICE.] [OBJECTS OF CO.] [PROSPECTUS.]

DIRECTORS' FEES.—The necessity for Directors is followed by the necessity that they be remunerated for their services. This remuneration generally takes the designation of Fees. The amount of such fees varies very much in different offices, and the mode of distribution equally so. As a general rule a fixed sum of money is provided by the deed or articles to be set apart for the purpose annually. In other cases the amount depends upon a vote of the annual general meeting. In others a certain fee is voted for each attendance, or a certain sum amongst those who attend each meeting.

In the deed of the *Equitable* it was originally provided that a sum not exceeding 40s. be divided at each court amongst the directors then present. In 1793 a new regulation was made, by which each director was to receive *one guinea* for every meeting of the directors at which he was present,

At the *London L.* no remuneration was to be allowed to the directors until a profit had been declared; it was then fixed at half-a-guinea each. The amount was afterwards increased to *one guinea*.

DIRT-EATING.—*Mal d'estomac*, or *cachexia Africana*; a disease observed among the negroes.

DISABILITY BY ACCIDENT.—See **DISABLED**. The word has a legal signification, as disqualified.

DISABLED [DISABLEMENT].—Rendered unable or incapable; deprived of force, vigour, or power of action; incapacitated.

The question of what constitutes disablement frequently becomes of very serious consequence to Accident and Health Insurance Companies. The question of degree of disability also arises; as the allowance during partial disability is much less than when wholly disabled.

By being "wholly disabled" is meant being wholly disabled from following one's ordinary bus. or every-day occupation; while being "partially disabled" naturally means a lesser degree of disablement, as being able to superintend, without being able to take the accustomed control.

In *Accident Ins. Cos.* the disability must be produced by some accidental and external violence operating upon the person of the insured. In *Health Ins.* disability from natural causes as well as from accidental injuries is contemplated.

The cos. usually stipulate that the disability must be produced by lawful means, and while in the pursuit of lawful avocations, within the scope and conditions of the ins.: hence duelling, fighting, wrestling, are excluded. So, again, all injuries resulting from wilful and wanton exposure to unnecessary risk are excluded; as are injuries resulting from offences against morality.

In the case of *Martin v. Travellers and Marine Ins. Co.*, 1859, it was *held*, that an injury to the spine, caused by lifting heavy weights in the course of business, was a disability such as would render the Co. liable. But the Court, in presenting the case to the jury, very properly said that the question was whether the injury really and substantially arose from the accident.

In *Hooper v. Accidental Death Ins. Co.*, 1860, the contract in the pol. was for compensation if an accident "shall cause any bodily injury" to the insured of "so serious a nature as wholly to disable him from following his usual business." The insured, an attorney-at-law, and Registrar of a County Court, sprained his ankle, whereby he was confined to his bedroom, and was unable to pass his accounts as registrar, or to attend various places to complete purchases for his clients; but he could see clients and transact bus. at his own house:—*Held*, that inasmuch as he was so disabled as to be incapable of following his usual occupation, he was wholly disabled within the meaning of the pol.: which means disabled from following his usual bus. in the usual way. We venture to think that this was only a case of "partial disablement," and would be so held under the more modern conditions of Accident Ins.

In judging of what constitutes disablement either whole or partial, much depends upon the experience of the officials and medical officers of the co. It is their business to detect and prevent the numerous frauds which are attempted.

DISAPPEARANCES.—It has been the subject of speculation as to how far a large life office—or indeed any life office—is likely, over a series of years, to be benefited by the disappearance of its policy-holders or annuitants. No data has ever been collected by the offices on this point. But in the course of 28 years' experience at the National Debt Office not more than seven disappearances, *wholly unaccounted* for, were observed, out of 1929 annuitants or nominees of annuitants. It may be remarked that perhaps annuitants are almost less likely to disappear than any other class of persons.

DISCHARGE.—To relieve of a duty. Also a receipt by way of release and "discharge" for money payable. The *City of Glasgow Life* has, under the authority of its special act, 1861, a form of "discharge" for payment of money under its pol. provided by its deed.

DISCHARGE OF INSURERS.—The underwriters of a pol. are not discharged by an act on the part of the insured, which to a certain degree increases the risk, if it does not amount to culpable negligence.—Lord Ellenborough in *Toulmin v. Inglis*, 1808.

In *Denison v. Modigliani*, 1794, the facts were these: After an ins. effected upon a ship on a trading voyage, the insured applied to the underwriters for leave to take in guns and a letter of marque, the latter of which was positively refused; notwithstanding which the ship sailed with a formal letter of marque:—*Held*, that this vacated the pol. and discharged the underwriters, although the insured did not in fact make use of the letter of marque for the purpose of cruising, or intend to do so, but merely took it on board for the purpose of cruising on the voyage home.

In *Moss v. Byrom*, 1795, it was *held*, that the insured upon a trading voyage taking out a letter of marque (but without a certificate which was necessary for its validity) unknown to the underwriters, solely with a view to encourage seamen to enter, and without any intention of using it for the purpose of cruising, though the vessel was armed for self-defence, is not such an alteration of circumstances as will discharge the underwriters.

In *Bain v. Case*, 1829, an action being brought on a pol., the defence was that the ship

stayed at a particular place for 109 days, and the underwriter claimed that he was discharged :—*Held*, that whether this was an unreasonable time was a question of fact for the jury.

DISCLOSURE.—The opposite of concealment. There is an implied obligation on the part of persons seeking the protection of insurance to make a full disclosure of all material facts. See **CONCEALMENT**, where the subject is fully discussed.

DISCONTINUANCE OF RISK.—In Fire, Accident, Glass, Steam Boiler, Carriage, and indeed in all branches of Ins. other than Life and Health Ins., it is a usual stipulation of the pol. that the insurers are to be at liberty to discontinue the risk on any of the ordin. periods of expiry of the current year's prem. : in other words, that the insurers are not bound to renew the contract ; and this discontinuance may take place without specific notice to the insured. Under **CONCEALMENT OF INS. POL.** we have considered cases in which the risk becomes cancelled without waiting for the ordin. period of ann. or other expiry.

In the early contracts of Life Ins. it was not an unusual practice for the parties undertaking the risk to reserve to themselves the power of putting an end to the ins. whenever they thought fit. For instance if a person insured his life for a given period, say for 5 or 7 years, the *undertakers* as they were then called had the power of discontinuing the contract at the expiration of the first year, without consulting the party who effected the ins., or even returning to him any portion of the prem. paid ! This was when the bus. was conducted by individual insurers ; and when no medical examination as to the state of health was demanded. The insurer claimed this ready mode of discontinuing a bad bargain if he found he had made one. [**RENEWALS.**]

DISCONTINUED POLICIES.—The term "discontinued policies" as applied to Life Ins. generally includes all those which cease to exist from any cause, as death, surrenders, lapses—and not the latter only, as the uninitiated might suppose. Unfortunately a very large proportion of life as also of accident pol. are "discontinued." [**LAPSED POL.**]

DISCOUNT OF MONEY.—Abatement ; a sum of money deducted from a debt in consideration of its payment before the stipulated time. The creditor, by receiving his money before it is due, is able to put it out at interest, during the interval, and he should therefore only receive such a sum as if put out at interest would produce the amount of the debt when it would become due. It is usually said to be of two kinds, viz. discount of bills and discount of goods ; but they are essentially the same. [**USURY.**]

The usual method of allowing discount by deducting from the amount of the debt the interest which it would produce at the given rate during the given time is inaccurate. The true discount for any given sum, for any given time, is such a sum as would, if put out at int., in that time amount to the int. of the sum to be discounted : the proper discount therefore to be received for the immediate advance of £100 due 12 months hence is not £5, but £4 15s. 2½d.—for this sum will at the end of the year amount to £5, which is what the £100 would have produced.—*McCulloch.*

Discount of money depends on the *rate* of int. and the time hence that the sum of money and its int. are to be paid ; and shows what a sum of money, to be paid at any *future* time, is worth *now*, in present money.—*Dale.*

DISCOVERT.—A widow ; a woman unmarried ; one not within the bonds of matrimony.

DISCOVERY.—At law, the revealing or disclosing a matter. A corporate co. or asso. may be made a party to a bill of discovery, through its principal officer.

DISCRETION OF DIRECTORS.—Many points in the management of ins. asso. are, and must be, left to the discretion of the directors. But the more material points are reduced to rule by usage and custom ; or have become regulated and governed by legal decisions, as we have shown in our art. **DIRECTORS.**

DISCRETION OF JUDGES.—In earlier times questions under ins. and other contracts were frequently left to be determined by the discretion of the Judge, who would most likely be entirely uninformed of the nature of the bus. out of which the point in dispute arose. Now such questions may generally be determined by settled principles of law. Lord Camden said, in the case of *Hindson v. Kersey*, "Discretion is the law of tyrants, and is always unknown ; it is different in different men ; it is casual, and depends on constitution, temper, and passion : in the best it is oftentimes caprice ; in the worst, every vice, folly, and passion, to which human nature is liable." No question affecting the interests, much less the reputation, of any individual should be left to the "discretion,"—it may be the malice—of one man.

DISEASE.—If the subject of *Death* has taken so large a hold upon the human mind as we have shown, it is not to be wondered at that *Disease*, which bears the appearance of being but the advance guard of death, should also attract very considerable attention. Indeed, there is at least one reason why disease should engage even more consideration than death. If the final catastrophe be inevitable, it is not generally supposed that disease is beyond the reach of human control ; that it is a condition ordained from the beginning. We do not forget the views of that school of writers whose pet theory has been strung together in the following lines :

Man, when first he draws his breath,
Inhales the lurking principles of death ;
The young disease, that must subdue at length,
Grows with his growth, and strengthens with his strength.

We rather incline to the philosophic view expressed by Dr. [not Mr.] Darwin—which by the way embodies also a theory of progressive development—

Ills, small at first, grow larger by delay,
And slowly eat their sad and cankering way;
Thus by successive throes the frame is torn,
Till health and peace of mind alike are gone.

But these different theories we shall have to review in more practical form as we proceed.

The term disease was originally applied to any distress or discomfort. Indeed, that appears to be the natural origin of the term *dis* and *ease*; and in the Norman French the word was *desease*. Now, any morbid state of the body generally, or of any particular organ or part of the body, is called a *disease*.

By medical writers the term disease is defined as implying "a deviation from the natural and healthy actions of the whole system, or of any individual part;" and they are in the habit of designating certain forms of disease by the following terms:—*Acquired*, which are not congenital or hereditary, but derived from causes evidently operating after birth. *Acute*, which are severe, but of comparatively short duration. *Asthenic*, attended by manifest depression of the vital powers. *Chronic*, which are of long duration. *Congenital*, which are born with the individual. *Constitutional*, which more or less affect the whole system. *Contagious*, of which we have already treated under that head. *Endemic*, diseases which are either peculiar to particular places, or which are especially prevalent in certain districts only. *Epidemic*, diseases which are generally diffused over a whole country; see under that head. *Exanthematous* are those diseases which are accompanied by an eruptive fever, such as measles, smallpox, etc. *Hereditary* diseases are such as prevail in families; gout and scrofula furnish examples. *Idiopathic* or *primary* diseases are those which are not dependent upon or symptomatic of others. *Infectious*, diseases which are communicable through the medium of the atmosphere. *Intercurrent* diseases are those which arise in individuals from incidental causes during the prevalence of endemic or epidemic sickness. *Intermittent* diseases are marked by a regular cessation and recurrence of symptoms. *Local* diseases are opposed to those which are constitutional. *Malignant* diseases are those which are of a highly dangerous and intractable character. *Periodical*, diseases which occur at fixed periods, as in autumn, winter, etc. *Puerperal*, diseases incident to women soon after childbirth. *Specific* diseases are those which are marked by some disordered vital action not belonging to diseases in general, but peculiar to the individual case. *Sporadic* diseases are those arising from adventitious causes affecting the individual. *Sthenic* diseases are marked by the activity of the vital power, directly opposed to those which are asthenic.—*Brande*.

Different classes of the pop. experience very different kinds of diseases. The principal causes of these differences, besides the sex, age, and hereditary organization, must be sought in three sources—exercise in the ordinary occupations of life, the adequate or inadequate supply of warmth and food, and the different degree of exposure to poisonous effluvia and to destructive agencies.—*Dr. Farr*.

We have spoken of the various theories of Disease. We may revert to the subject again at this point.

Dr. Price, in one of the later editions of his *Observations on Reversionary Payments*, pub. towards the close of the last century, said :

It must also convince all who consider it, that . . . it is by no means strictly proper to consider our diseases as the original intention of our nature. They are without doubt in general our own creation. Were there a country where the inhabitants led lives entirely natural and virtuous, few of them would die without measuring out the whole period of the present existence allotted to them; and death would come upon them like a sleep, in consequence of no other cause than gradual and unavoidable decay. Let us then, instead of charging our Maker with our miseries, learn more to accuse and reproach ourselves.

Dr. Farr, writing in the light of more extended scientific investigation, considers that there is a *natural tendency to disease in the human race*. Particular classes of diseases, he points out, reign in different regions and seasons, but cases appear to occur in all climates, to demonstrate that every kind of malady can arise where man can subsist. This tendency to disease (he continues)—the morbid diathesis—is seen in families that are surrounded by the same external circumstances; where some suffer from asthma, some from gout, some from insanity, some from phthisis. There must, it is evident, be here a predisposition to disease, or it would not be stronger in one than in another, and different families would not be peculiarly subject to this or that form of malady, this or that kind of death. The human race, and every large section of the race, may then be considered as having hereditary predispositions to the pathological phenomena designated diseases, in such a way that children are not generally born with disease, but in the successive changes which they undergo, from the first throb of life to their final evolution, there is, besides the upward, onward impulse, a principle which draws a certain number within the sphere of disease and mort.—*1st Rep. of Reg.-Gen., 1839.*

An hypothesis has been advanced to this effect: however much medical skill and energy may alter the *form* and *pressure* of disease, Death will have its quota; that the stream of mort. is uniform, and that the totality will always prove pretty much the same.

So far preliminary. There may be, and prob. are, many theories of disease of which we individually know nothing. Our purpose here is rather to deal with the *Statistics of*

Diseases, so far as they have been recorded ; and to note the varying attempts which have been made in this direction. Also to draw attention to the works of various writers which have any bearing upon the branches of inquiry embraced in our present work. The purely medicinal or curative part of the subject does not fall directly within our scope. The removal of the *causes of disease* is a matter in which we are all deeply interested. To this end, however, a wide understanding of the subject is necessary.

Under *BILLS OF MORT.*, *CHOLERA*, *CONSUMPTION*, and *DEATH*, *CAUSES OF*, we have referred to various authorities treating of diseases, and different classes of disease, which we do not propose to repeat here, unless special causes for repetition should present themselves.

Graunt, in his *Observations on the Bills of Mort.* (1661), says, "The diseases, which, beside the plague, make years unhealthful in this City [Lond.] are spotted fevers, small-pox, dysentery, called by some the plague in the guts ; and the unhealthful season in the autumn."

In 1705 a treatise on the *Diseases of Tradesmen*, etc., was translated from the Latin of Bernard Ramazzini, M.D., into English. The work was long held in high esteem ; and will be spoken of fully under *OCCUPATIONS*, *INFLUENCE OF*, *ON HEALTH*. This was, we believe, the first of its class.

Sussmilch, in the 2nd vol. of his *Göttliche Ordnung*, 1742, gives a T. of the deaths by the different diseases at Berlin for the year 1746, when 3434 deaths were regis. The sexes are distinguished, and the number of deaths by each disease is given for each year of age to the 5th inclusive, then quinquennially to the age of 100. In the 3rd vol. of the same work 5 other similar T. are given, viz. T. No. 34—Deaths in Berlin in the years 1774 and 1785 separately. No. 35—in Berlin for 17 years. No. 36—in Salzwedel and Ardensee for 9 years. No. 37—in Lebus for 21 years. No. 38—in 140 German villages for 9 years. The sexes are distinguished in each, except No. 35—the ages in none of them.

In 1770 Dr. John Rutt, M.D., pub. *A Chronological Hist. of the Weather and Seasons, and of the prevailing Diseases in Dublin, etc., during the space of 40 years.* [DUBLIN.]

Dr. Haygarth contributed to the *Phil. Trans.* the deaths by different diseases at Chester for the years 1772 and 1773, but the sexes were not distinguished. Mr. Milne speaks of these "as excellent models for such T."

In two vols. of *Essays, Medical and Experimental*, pub. by Dr. Percival in 1773, there were included some proposals for estab. more accurate and comprehensive Bills of Mort. ; and also some select histories of diseases.

In 1781 Dr. Wm. Black, M.D., pub. *Observations, Medical and Political, on the Small-pox and Inoculation ; and on the decrease of mankind at every age : with a comparative view of the diseases most fatal to Lond. during 90 years*, etc. This writer, referring to the theory of Dr. Price, as already set forth, says, "This proposition may be useful to encourage morality, but it will not bear a medical scrutiny."

Later in the same year appeared a 2nd ed. of same work with enlarged title, as follows : *Obs., Medical and Political, on the Smallpox, and the advantages and disadvantages of general Inoculation, especially in cities : and on the mort. of mankind at every age in city and country ; with a comparative view and regular T. of all the fatal diseases and casualties in London during the last 105 years, by which about 2 millions and a half of the human species have been exterminated ; including an attempt to demonstrate in what manner Lond. may save 2000, Gt. Brit. and Ireland between 20 and 30 thousand, and Europe about 390,000 lives ann. To which is added a postscript containing a sketch of an easy plan for new modelling and essentially improving the Lond. Bills of Births and Mort. Second Ed. greatly enlarged, with several alterations and corrections.* The writer says (p. 120) :

Bills of Mort. demonstrate this awful truth, that very few of the human species die of old age, or natural decay ; by far the greatest portion are prematurely cut off by diseases. Of all the animal tribe who bring forth one at a birth, none die in such numbers in infancy as the human species. In Lond. and all the vast capitals of Europe, upon an average, one-half of the children born die under 3 years of age. . . .

Chap. 3 treats of :

The diseases which annoy, and occasion the principal mort. amongst mankind ; with a few T., each of equal periods, 15 years each, showing by the Lond. Bills all the fatal diseases, casualties, and deaths at every age in the metropolis during the last 105 years, which exterminated about 2,500,000 of the human species : at the same time exhibiting a distinct view of the ratio of mort. by each distemper and casualty : critical reflections upon those diseases and casualties, and upon the Bills, and upon the different periods of life at which each predominates : and concluding with a novel attempt to form a gross estimate of the numbers annually destroyed by different diseases and casualties throughout Gt. Brit. and Ireland.

The writer says :

In the rude state of science and medicine it was usual to ascribe most diseases to the immediate resentment of some invisible demon, or to divine displeasure and chastisement ; learning and philosophy in every country discarded such supernatural agents. It is not more than two centuries ago when the people of Eng. could with difficulty be persuaded that the jail distemper communicated at the Oxford Assizes from the prisoners to the spectators was not kindled up by witchcraft. In the age of ignorance, superstition, and credulity, distempers were imputed to demons and necromancy ; on this account in all barbarous nations their physicians have been a set of stupid conjurers. Others, again, equally err in supposing diseases to be unsteady motions of the human machine, excited by something hurtful. This popular error seems to originate from confounding diseases themselves with the practice of physic : they are each beyond dispute presented to us over and over again in nearly

the same form and shape. The diseases delineated 2200 years ago, by Hippocrates in Greece, at this day retain the same essential marks and prominent features; though in degree and violence there unquestionably are gradations and shades which may vary the picture.

The statistics referred to really consist of an analysis of Lond. B. of Mort., with observations on the various disorders. They do not throw any light upon the subject beyond that which will be found in our art. B. OF MORT.; and DEATH, CAUSES OF. The Postscript contains, "The sketch of a plan proposed for new modelling and essentially improving the Lond. B. of Births and Mort., and equally well adapted to every other great city." The plan consisted of a schedule, with columns containing the following headings: 1, date; 2, no. who died in this month; 3, place of abode; 4, name; 5 sex; 6, age, years; 7, age, months; 8, disease or casualty; 9, cause if known; 10, how long sick or afflicted, years, months, weeks, days, hours, minutes; 11, bachelors, virgins, married, widowers, widows; 12, abortives and stillborn, how near maturity, and if perished during labour; 13, carried out of town for interment. The form appears to be very simple in its requirements, but very practical.

In the *Trans.* of the Imperial So. of St. Petersburg [*Acta Ac. Sc. Imp. Petrop.*], 1782. there is a memoir by M. Kraft, on the marriages, births, and deaths of St. Petersburg, during a period of 17 years, from 1764 to 1780, wherein the number of deaths by each disease is given, for each year, and each sex separately.

In 1785 Sir Gilbert Blane pub., *Observations on Diseases incident to Seamen*. This subject will be fully discussed under MARINERS' LIVES, and SEAMEN.

Dr. Heysham, who collected the data from which the *Carlisle T.* was deduced, kept correct regis. of the diseases of which all died in the parishes of St. Mary and St. Cuthbert, Carlisle, as well as the ages at death, during the 9 years ending with 1787. He printed a T. each year. Mr. Milne speaks of these as "the most valuable obs. of this kind that I am acquainted with." During the period of these obs. "Carlisle was visited with every infectious and epidemical disease to which the human body is subject, the plague only excepted." Mr. Milne adds: "The usefulness of T. of this kind depends greatly upon their admitting of an exact comparison with each other; and nothing contributes more to this than uniformity of classification and nomenclature." [DISEASES, CLASSIFICATION OF.]

In 1801 there were pub. Eight Meteorological Journals of the years 1793 to 1800 kept in Lond. by William Bent; to which was added, *Observations on the Diseases in the City and its Vicinity*. The author says:—

The Obs. on Diseases were added with an intent to show what connexion they have with the state of the atmosphere; the tendency they acquire from its various temperatures, and the different treatment they require in such circumstances, particularly in large and populous cities. [LONDON.]

In 1801 Dr. Robert Willan pub. *Reports on the Diseases in Lond. particularly during the Years 1796, 1797, 1798, 1799, and 1800*. This work, which still remains an authority, will be reviewed under LONDON.

In 1801 Dr. Heberden the younger pub. *Observations on the Increase and Decrease of different Diseases, and particularly of the Plague*. [PLAGUE.]

In 1804 there was pub. in Calcutta, by William Hunter, A.M., *An Essay on the Diseases incident to Indian Seamen, or Lascars, on Long Voyages*. [INDIA.] [SEAMEN.]

Dr. Woolcombe pub. in 1808: *Remarks on the frequency and fatality of different Diseases*. He arrived at the conclusion that the mort. from consumption in Gt. Brit. was increasing. Mr. Milne remarks hereon:

I know no data from which any conclusions entitled to confidence can be drawn with regard to the degree in which consumption may have increased or decreased throughout the island. But the increase in its mort. compared with that from other diseases, which has appeared so alarming to some, seems to be adequately accounted for by the great decrease which is known to have taken place in the mort. from those others.

Mr. Milne here refers to an investigation which he had himself conducted about this period into the diseases of Lond. during two periods,—the first, 10 years preceding 1780; the second, ten years ending 1810. He arrived at the conclusion that the following diseases had decreased during that period,—i.e. during the 30 years 1775–1805—in the proportions named after each, viz. apoplexy *one-ninth*, childbed and miscarriage *one-third*, consumption *one-third*, dropsy *two-fifths*, fevers of all kinds *three-fifths*, gout *one-eighth*, smallpox *three-fifths*, old age *one-fourth*! The following had increased during the like period: asthma *one-twenty-first part*, palsy *one-eighth*, measles was *doubled*. Also "that the rate of mort. from all these causes together was less in the second period [10 years ending 1810] than in the first [10 years ending 1780] in the ratio of 1852 to 3059, or of 20 to 33 nearly; the reduction in the ann. deaths from these causes having been 1207 out of 3059 for every 100,000 of the living." He adds:

But the proportion of mort. by each disease, to the total mort., will be found to have varied in a very different manner, as it necessarily must; for the general rate of mort. in the second period having been less than in the first, in the ratio of 20 to 34, the number of the living producing 100,000 ann. deaths in the second period must have been greater than in the first, in the ratio of 34 to 20. Therefore the number of ann. deaths by each disease, proportioned to a total of 100,000 for the second period, is increased in the ratio of 34 to 20, not by the increased frequency or mort. of that disease, but by the increase in the corresponding number of the living. So that in the col. of the proportions in which the different diseases contribute towards the total mort., the number of deaths attributed to any one of them in the second period will be greater than in the first, even though the rate of mort. from it be reduced to a greater ratio than that of 34 to 20.

From want of attention to the distinction here pointed out between the rate of mort. produced by disease, or the proportion in which it contributes to the total mort., false inferences have generally been drawn with regard to the increase and decrease of different diseases.

An add. interest is attached to this investigation by Mr. Milne, inasmuch as it was upon the B. of Mort. during the first period—10 years ending 1780—that Dr. Price constructed his LOND. MORT. T. We have to make more direct reference to Mr. Milne's treatise presently.

In 1811 Dr. Thomas Jameson, M.D., pub., *Essays on the Changes of the Human Body at its different Ages; the Diseases to which it is predisposed in each period of Life; and the Physiological Principles of its Longevity*. The author says:

Premature death is a law so general among the human species, that a small portion of the whole finish their course by natural decay of the organs. The thread of life is usually cut short by diseases, accidents, and the habits of society.

Premature destruction, the most obvious principle in the grand scheme of creation, appears to be the means employed by nature to preserve an equilibrium among the immense numbers and varieties of beings, crowded into definite space. Men are chiefly destroyed by diseases, particularly in early life, and we cannot help observing, with deep interest, that when adults become too numerous in any one place, their lives are liable to be sacrificed *en masse*, from the want of food; the infection of their own bodies; or the effects of mutual hostilities.

We have shown in another place that many diseases are uniform actions of the body, which assign different degrees of longevity to every particular age; and that the equilibrium between internal and external powers was disturbed by the first and last stages of our existence; and are thereby charged with nine-tenths of the whole of human mort. There are, besides, many diseases occurring from fortuitous circumstances, even in the most perfect states of the machine, to complete the sum of human mort. There are, in fact, no conditions of men who are not in all situations subject to premature destruction under the exercise of every prudent measure, from causes which are beyond human control. Whither can we fly to escape from sudden vicissitudes of climate, or from the afflicting losses of relatives, friends, and fortune? We can no more guard against epidemic states of weather than we can prevent diseases from the orig. condition of stamina, and natural changes of the body.

In Mr. Joshua Milne's *Treatise on the Valuation of Annuities*, etc., 1815, there is contained a chap. "On the comparative Mort. of different Diseases, of the different Seasons of the Year, and of the two Sexes." This learned writer says:—

It has been shown in the preceding chap. that the ordinary rate of mort. in some places is twice as great as in others; also that it has been very different in the same places at different periods, and this will be shown more fully hereafter. *If the diseases of which all died had been ascertained as nearly as was practicable, and being uniformly classed, had been correctly entered in the regis. of burials, together with the ages and sexes of the deceased, by comparing such regis. with the number of living, and other circumstances in the situation of the people, as well as with the practice of medicine in various places and at different periods, it would have appeared how these differences in the rate of mort. had been produced, and much important information would have been obtained.*

In 1818 Sir Gilbert Blane issued a statement respecting the contagious nature of Yellow Fever. [YELLOW FEVER.]

In 1819 Dr. Bateman pub., in one vol., a series of *Observations and Reports* which he had issued at various periods between 1804 and 1816, on the *Diseases of Lond.* [LONDON.]

Mr. Benwell, in his *Essay on Interest and Annuities*, etc., 1821, pointed out that the ratio of pop. to the births would be evidently increased by the abstraction (*i.e.* removal) of any disease destructive to the human race. And he added:

The simple method of estimating the value of the ratio in which the duration of human life is increased by the extinction of a disease—is first to determine, from obs. the specific number of persons who die of it yearly at any assumed age, and then deducting the amount from the total number of deaths at such age. The ratio of this difference to the entire number living at the same age will express the true prob. of dying at this age, were the disease not existing.

Sir Gilbert Blane, in his work *On the Diseases of London*, pub. 1822, records that in his private practice as a physician he had registered the cases of 3816 patients—of course in the higher classes—of whom 382 died, which, as near as may be, is one in ten. At the same time in his hospital practice as physician of St. Thomas's he had registered 3835 patients, obviously of the very poorest classes, and some no doubt in the severest stages of sickness, of whom there died 374, not quite so much as 1 in 10. The difference is not very much either way, but what there is proves that the mort. of the poor was at any rate the least of the two. [LONDON.]

Some writers have gone so far as to assert the "Common origin of Diseases"—this is, if we understand it, that all diseases have become developed from one common form. Dr. C. H. Parry, of Bath, in his *Elements of Pathology and Therapeutics*, pub. 1825, argued in support of this view. In our art. on CORRELATIONS OF DISEASE we have given some instances and authorities upon the subject.

In 1829 Mr. Geo. Farren pub.: *Observations on the Laws of Mort. and Disease, and on the Principles of Life Ins.; with an Appendix containing illustrations of mania, melancholia, craziness, and demonomania as displayed, etc.* Of the contents of this work, as of others by the same writer, we shall speak in some detail under DISEASED LIVES, INS. OF.

In 1832 Mr. Marshall pub. *Mortality of the Metropolis*, in which was contained a statistical view of the number of persons reported to have died of each of more than 100 kinds of disease and casualties within the Bills of Mort. in each of the 204 years 1629–1831. [LONDON.]

In 1834 Dr. William Henry, M.D., F.R.S., prepared for the British Asso., *Report on the state of our knowledge of the Laws of Contagion*. This Rep. was so far adopted by the

learned body for whom it was prepared as to be introduced *in extenso* into the scientific portion of the Transactions. The author says :—

VIII.—It may be held as a general principle that no specific poison ever gives rise to any other contagious malady than that of which it is itself the product. The poison of smallpox never occasions measles; nor that of measles smallpox. It must, however, be acknowledged, that the sequent disease is seldom an exact *fac-simile* of the antecedent, but often differs from it, not only in degree, but in the absence of one or more of the usual phenomena, or in the add. of others not commonly observed. Scarlatina, it is well known, when communicated to numbers from a common source, may affect some severely and others slightly; and the general fever, the eruption, and the affection of the fauces and the throat, may exhibit almost infinite varieties. In like manner, a mild and distinct smallpox has often imparted a confluent and dangerous sort and the reverse. It is needless to multiply examples, because inconstancy of symptoms is observable, not of contagious disorders only, but of all others, whether acute or chronic. Our classifications and nomenclatures of diseases are in fact founded, not on constant and uniform characters, like those estab. the distinctions of natural hist., but on the general features, which are liable to be qualified by many exceptions, and which present almost infinite varieties of aspect.

IX.—Of the nature of those processes by which a simple fever becomes contagious in its progress, we are totally ignorant. The opinion that a contagious poison is in any case generated by a change in the animal fluids analogous to fermentation or to putrefaction (a change veiled by Sydenham under the phrase *commotio sanguinis*), is inconsistent with general reasoning as well as with observation. . .

XXXII.—When a number of persons are exposed, apparently under precisely the same circumstances, to a contagious poison, it seldom happens that all are affected by it. It is to individual peculiarities influencing the state of the body at the time that we are to look for the causes of these varieties. The circumstances promoting the action of contagion have been classed together under the name of predisposing causes [PREDISPOSING CAUSES], which agree generally in lowering the strength of the body, or depressing the energy of the mind. Among these may be reckoned fatigue, want of sleep, extreme cold or heat, crowded or close places, air tainted by putrefying substances, scanty or bad food, or occasional long fasts, excessive evacuations, and intemp. rate indulgences of every sort. The depressing passions of fear, grief, and anxiety are powerful auxiliaries of contagious poisons. So also are religious creeds that lead to gloom and despondency, or that inculcate observances requiring abstinence or other practices unfavourable to health. But of all predisposing causes, poverty, with its attendant physical and moral evils, prepares the greatest number of victims to contagious diseases, and most widely spreads their destructive ravages.

It may be received, then, as a general conclusion, to be applied to all our reasonings in special instances, that *no one malady is invariably and under all circumstances contagious; in other words, that a contagious poison is such only in a limited and qualified sense.*

XXXIII.—Besides the general causes promoting or counteracting the efficiency of contagious poisons, there are others of limited operation, affecting chiefly certain individuals or classes of men. 1. From peculiarities of structure or constitution not at all understood, some persons enjoy an exemption from particular contagious diseases. . . . 2. Whole tribes and classes of men share in liability to be infected by some diseases, and in the power of resisting others. In hot climates the negro resists certain morbid poisons which the European is unable to withstand. The Bedouin Arabs, we are told, wear with impunity the cast-off clothes of persons who have died of plague, without even attempting to purify them; but the soldiers of the French army in Egypt fell victims to the same practice, which all the authority of the General-in-Chief could not suppress. 3. Different periods of life modify the predisposition to infectious diseases. Old persons enjoy an exemption from some contagions, but not from others; and infants at the breast show a remarkable insensibility to some contagious maladies.

XXXIV.—But of all the circumstances that impart the power of resisting contagion, the most remarkable is the force of habit. In this respect, as in many others, we find a close analogy between ordinary and contagious poisons. . . . In like manner, medical practitioners and the nurses of the sick breathe with impunity contagious emanations to which they are in the daily habit of being exposed.

It was remarked by Dr. Ferriar, that the keepers of the lodging houses in Manchester, of the lowest and filthiest kind, from which typhus fever was seldom absent, were untouched by the reeking poison, while the new comers kept up a constant succession of victims to its effects. . . .

XXXV.—The immunity acquired by habit is not, however, in all cases either permanent or absolute. 1. Medical practitioners and nurses, who have long discontinued their avocations, have again become liable to be infected by febrile contagion. 2. Persons accustomed to breathe without injury atmospheres impregnated to a certain extent with contagion, yield to the influence of stronger doses. . . . 3. Persons who by habit are enabled to resist one kind of infection, do not on that account enjoy a security against others. Of this, beside many other instances, we have a striking illustration in the havoc which spread so rapidly among the medical practitioners in Prussia, when Asiatic Cholera first appeared in that country.

XXXVI.—There is reason to believe that contagious poisons may be received into the system, and may remain in it some time without manifesting their usual consequences, until some accident calls them into full action, and gives birth to the usual train of symptoms. Circumstances of this kind have been called concurring or exciting causes. . . .

We recur to this able paper in other parts of this work.

In the *Trans. of the Brit. Asso.* for 1835 there is a Rep. from the Edinburgh Sub-Committee appointed in the preceding year to consider the subject of "Regis. of Deaths," from which we draw the following passage :

Every individual case of disease, or of death from disease, is prob. determined by several external causes, the respective influence of which is very easily misapprehended; and it is only by multiplying *very greatly* the number of obs., that such sources of fallacy, attending any single cases, can be avoided, and general laws touching the influence of such causes be satisfactorily deduced. Thus it is in general only by observing that a particular disease affects a much greater number of those persons who are known to have been exposed to the agency of a particular external circumstance, than of those who are not known to have been exposed, that we learn that such circumstance has power to cause that disease. It is very seldom, particularly in civil life, that we can have obs. as to the influence of such a cause, of the nature of the *experimentum crucis*; i.e. when all other circumstances in the condition of the persons obs. are exactly alike, excepting only the presence of that cause in one set of cases, and its absence in another. But it may always be presumed that out of a *very great number of cases*, in which one condition has been uniformly present, all other conditions must have been applied very variously; and therefore by very greatly multiplying the number of obs., where one alleged cause has been applied, we may ultimately get rid of the source of fallacy, resulting from the varying conditions of each single obs., and form a fair estimate of the efficacy of the particular cause in question.

In 1837 M. d'Amador pub. a Memoir, in which he endeavoured to apply the Doctrine

of Prob. to measure the Law of Disease. The paper gave rise to a violent discussion; but with that the matter dropped out of sight.

With the period 1836-9 was inaugurated a new era in regard to the records of disease in E. and W. The General Regis. Act passed in 1836 purported only to deal with the mere uniform record of the Births, Marriages, and Deaths in E. and W.—for it did not apply to either Scotland or Ireland. This in itself was a most worthy object; but the occasion was seized upon to give the measure a wider significance than the stolid legislators who had, with some hesitation, passed the measure, could have foreseen. It was with the 1st Ann. Rep. of the Reg.-Gen. appointed under the provisions of the said Act—which Rep. was pub. in 1839—that an indication was furnished of what might be expected to follow, and of what *has followed*. The Letters of Dr. W. Farr, contained in that first Rep., and in most of those which have followed it, have done more than any other event in our time to lead to a right understanding of the conditions upon which human life and health depend.

The name of Dr. Farr does not now require to be formally introduced to our readers. It has become literally a household word in the best and truest sense. The health, and therefore happiness, of our households has been largely contributed to by him—and the people know it. We will therefore simply quote some of the almost prophetic passages which appear in the said first letter :

The deaths and causes of deaths are scientific facts, which admit of numerical analysis; and science has nothing to offer more inviting in speculation than the laws of vitality, the variations in those laws in the two sexes at different ages, and the influence of civilization, occupation, locality, seasons, and other physical agencies, either in generating diseases and inducing death, or in improving the public health.

One of the many obvious applications of the facts will be to the promotion of practical medicine. The extent to which epidemics vary in different localities, seasons, and classes of society, will be indicated by the regis. diseases; and the experienced practitioner, wherever he may be placed, will learn to administer remedies with discrimination, and with due reference to the circumstances of the pop. He will discover that the characters of disease change, and will not treat a pneumonia in the same way in Whitechapel and in Westmoreland, if it appear from the causes of death that the diseases and constitutions of the pop. present striking discrepancies. The modifications in the character of diseases and in the medical treatment are indicated perhaps more accurately by the prevailing epidemics than by either the temperature, the hygrometricity, or any other appreciable condition of the atmosphere; and it was Sydenham's doctrine that the treatment of acute diseases should have a reference not only to the immediate symptoms, and to the seasons, but also to the epidemic constitutions of the year and place. A national system of registration like the present can alone indicate the characters of the diseases in every district; and determine how far the practice taught in the schools, or illustrated in crowded hospitals, and in the unhealthy parts of the metropolis, among the destitute poor, may require modification among other classes of society, and in other localities.

The regis. of diseases in the several districts of the kingdom will furnish medical men with a series of valuable remedial agents. It will designate the localities where disease is most rife, and where there is the least tendency to particular classes of sickness and infirmity. In recommending a residence to patients the physician will find the regis. causes of death an indispensable directory; and the utility of a sanatory map of the country, such as the returns will furnish, cannot fail to be felt in England, where a part of the pop. is constantly migrating from place to place in search of health. Much information has been collected respecting the influence of the English climate; but the facts will bring to light many salubrious spots hitherto unknown, and disclose the dangers which infest others unsuspected. Invalids resort to some unhealthy places; families carry their children in the autumn into districts where smallpox and measles are often epidemical, or go into parts of the country where, as the registration shows, bowel complaints and fevers are extraordinarily fatal.

Again :

Any improvement in the treatment of disease, and any addition to medical science, will tend ultimately to the diminution of human suffering; but the registration of the causes of death is calculated to exercise a still more direct influence upon public health. Diseases are more easily prevented than cured, and the first step to their prevention is the discovery of their exciting causes. The registry will show the agency of these causes by numerical facts, and measure the intensity of their influence.

Finally :

Besides plagues, there is another vast, noiseless legion of diseases, marching at an even pace, neither exhibiting aggravation nor creating sudden desolation, but never halting day nor night, and less under the control of external circumstances than epidemics. They are named *sporadic diseases*, by medical writers, and are the ordinary maladies of every-day occurrence. The line of demarcation between them and plagues is sufficiently broad; but as epidemics approach ordinary diseases, prevail sporadically, and only break out epidemically at intervals, it is not unlikely that certain sporadic diseases take a colour of the plague character.

In 1841 Major A. M. Tulloch read before the Statistical So. of Lond. a paper : *Comparison of the Sickness, Mort., and Prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports*. This paper has already been quoted under CONSUMPTION. It is further dealt with under DISEASES OF THE ARMY; and under NAVY, DISEASES OF.

In the 2nd Rep. of the Reg.-Gen., pub. 1841, Dr. Farr enters into an elaborate investigation of the influence of town life upon diseases. This subject we propose to discuss in some detail under TOWN LIFE.

In the *Companion to the Brit. Almanack*, 1841, there is an art., *Statistics of Disease and Mort. in E. and W. in 1838*. The writer reviews, in some detail, the statistics of the causes of death as shown in the Report of the Reg.-Gen. for the year last named; but he throws no new light upon the subject.

The Census Commissioners for Ireland, 1841, include in their Rep. an investigation into the causes of death in Ireland during the preceding ten years by Mr. W. R. Wilde,

surgeon. This is frequently referred to as an investigation into the "diseases of Ireland," but it merits no such distinction. It is a most able rep. upon the "causes of deaths in Ireland" as drawn from details furnished by the Census Schedules, and that is all. [IRELAND.] (See 1851.)

In 1842 Dr. Lyon Playfair, M.D., prepared for the British Asso. an *Abstract of Prof. Liebig's Report on Organic Chemistry applied to Physiology and Pathology*. We shall have occasion to refer to this valuable paper in other parts of this work [FOOD, [HUMAN LIFE]; but at the conclusion of the learned Professor's Report was a chap. on the "Theory of Disease," which requires to be noticed at this point. It will be remembered that we are dealing with but an abstract of the orig. :

The whole life of animals consists of a conflict between chemical forces and the vital power. In the normal state of the body of an adult both stand in equilibrium; that is, there is an equilibrium between the manifestations of the causes of waste and the causes of supply. Every mechanical or chemical agency which disturbs the restoration of this equilibrium is a *cause of disease*. Disease occurs *when the resistance offered by the vital force is weaker than the acting cause of disturbance*. Death is that condition in which the chemical or mechanical powers gain the ascendancy, and all resistance on the part of the vital force ceases. This resistance never entirely departs from living tissues during life.

Every abnormal condition of supply or waste may be called *disease*. But it is evident that one and the same cause of disease, that is of disturbance, will have different effects according to the period of life. A cause of disease added to the cause of waste, may in old age annihilate the resistance of the vital power, or in other words occasion death; while in the adult state it may produce only a disproportion between supply and waste, and in infancy only an abstract state of health, *i.e.* an *equilibrium* between supply and waste.

Now from what has preceded it is obvious that a deficiency of resistance in a living part to the cause of waste is in fact a deficiency of resistance to the action of the oxygen of the atmosphere. Prof. Liebig has shown, in that part of the Rep. which I have omitted, that the phenomena of motion are dependent upon the change of matter; consequently if by a diseased transformation of living tissues a greater amount of force be generated than is necessary for the production of the normal motions, it is seen in an acceleration of the involuntary motions, as well as in the higher temperature of the diseased part. *This condition is called fever*. And when a great excess of force is produced by change of matter, the force, since it can only be consumed by motion, extends itself to the apparatus of voluntary motion. *This state is called a febrile paroxysm*.

Should there be any products formed during disease, which the organs in their immediate vicinity cannot employ in their own vital functions, *eremacausis* will ensue, which may be communicated to other parts of the body. The physician sometimes removes these diseased conditions by exciting an artificial diseased state in their vicinity, such as by blisters or setons. In this case he throws a less important part of the body into a state in which it more readily yields to the oxygen, and therefore removes the causes of waste from the diseased organ. When this cause of waste is reduced, the resistance or vital force increases, and renovates the part removed by oxygen.

In cases of a different kind, where artificial external disturbance produces no effect, the physician adopts other indirect methods to exalt the resistance offered by the vital force. He diminishes the number of blood-carriers (the globules), and by this means the cause of change. He excludes from the food all matter capable of conversion into blood, and gives chiefly or entirely non-azotized food, which supports the respiratory process.

In this same vol. of Transactions of the Brit. Asso. 1842, there is contained : *Report of a Committee of the Brit. Asso. for the Advancement of Science, consisting of Lt.-Col. Sykes, F.R.S.; Lord Sandon, M.P.; G. R. Porter, Esq., F.R.S.; J. Heywood, Esq., F.R.S.; Dr. W. P. Alison, and E. Chadwick, Esq., on the Vital Statis. of Large Towns in Scotland*. This document furnishes various details regarding diseases in these large Scottish towns; but we are of opinion, after a careful survey of the data on which they were founded, that no good result would arise from reproducing any part of them. There is, however, one paragraph in this very length Rep. which we desire not to dismiss in such a summary manner :

The effect of intemperance on the human constitution in producing disease and death is undoubted; and we too often witness the pernicious effects produced on the family of the drunkard by his expending on what is to injure his health, degrade him in the eyes of his fellow-men, and bring him to an early grave, those funds whereby he would be enabled to procure a greater abundance of wholesome food, clothing, and fuel for his family, to protect them against the inclemency of the seasons and the ravages of disease. . . . It is gratifying, however, to learn from well-informed parties in the towns reported on, that marked improvement has taken place in the temperate habits of the people.

In 1843 Dr. W. A. Guy, M.B. Cantab, read before the Statistical So. of London a paper : *Contributions to a Knowledge of the Influence of Employments upon Health*; and in the same year : *Further Contributions to a Knowledge of the Influence of Employments upon Health*. The former of these papers has been spoken of under CONSUMPTION. We shall deal with them more at large under OCCUPATION, INFLUENCE OF, UPON HEALTH.

In 1843 Dr Hector Gavin, M.D., pub. a work : *On Feigned and Factitious Diseases, chiefly of Soldiers and Seamen; on the means used to simulate them, and on the best mode of discovering impostures*. Such a work is of use to the Surgeons of Health Ins. Sos., Friendly Sos., and Accident Insurance Cos.

In 1844 Dr. T. Graham Balfour, M.D., submitted to the Statistical So. of Lond. a paper : *Comparison of the Sickness, Mort., and Prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports*. We have already spoken of this paper under CHOLERA, ASIATIC; we notice its contents further under DISEASES OF THE ARMY, and under NAVY.

Mr. F. G. P. Neison read before the British Asso in 1850, a paper : *Mort. of the Provident Classes of this Country, and on the Continent*. We can only here present a brief synopsis of its contents. In the decennial period of age 31-40 the greatest rate of mort.

had taken place from pulmonary diseases, next from fevers, and then from local inflammations, abdominal diseases, apoplexy, and least of all from dropsy; and in the next 10 years of life the mort. from these diseases follows the same order as to their intensity. In the term of life 51-60, however, the following is the order in which the 6 diseases stand as to intensity: apoplexy, fever, pulmonary diseases, inflammations, dropsy, and abdominal diseases. And in the 10 years 61-70 the order is again varied. These decennial variations may be best shown in the form of a table.

Diseases arranged according to the order of their intensity at the following terms of life:—

31—40	41—50	51—60	61—70	71—80
Pulmonary Dis. Fevers. Inflammations. Abdominal Dis. Apoplexy. Dropsy.	Pulmonary Dis. Fevers. Inflammations. Abdominal Dis. Apoplexy. Dropsy.	Apoplexy. Fevers. Pulmonary Dis. Inflammations. Dropsy. Abdominal Dis.	Apoplexy. Inflammations. Abdominal Dis. Fever. } Dropsy. } Pulmonary Dis.	Apoplexy. Inflammations. Fevers. Abdominal Dis. Dropsy. Pulmonary Dis.

Pulmonary disease is therefore, so far as the preceding facts are concerned, essentially the disease of the highest intensity in the destruction of life under 50; and above that age apoplexy; the other diseases maintaining varying but intermediate positions in the scale of mort.

In 1851 the Commissioners for taking the Census in Ireland made a real attempt to obtain returns of the "Status of Disease" in that country on the night of taking the census, viz. 30 March. They supplied schedules requiring an account of the members of every family, visitors, servants, and other residents, who laboured under sickness, and who abode with each family on the night aforesaid; together with the names or initials of names, age, and sex, in order to secure identity; the rank, profession, or occupation of such persons when in health—that it might be seen how far particular trades or employments conduced to the production of any special class of disease; whether the person was then "able or unable" to follow his or her occupation—that it might be ascertained how many of the community, not in hospitals or public inst., were rendered by disease incapable of contributing to the support of themselves or of the community at large; as well as the particular disease or accident which caused illness; and also how long the patient had been so affected.

The Rep. resulting from this inquiry was laid before Parl. in 1864. It contains special information on the numbers and condition of the deaf and dumb, of the blind, of lunatics and idiots, of lame and decrepid, of the sick in workhouses, hospitals, prisons, and asylums, and a general rep. on the total sick in Ireland on the day of the Census of 1851. These Reps. are illustrated by 39 elaborate statistical T. Add. details are given in an appendix of 7 T., 5 of which show the number and diseases of the sick at their own homes and in public inst. in Ireland generally, and in each of the 4 provinces; the 6th shows the same arranged in counties, cities, and towns; and the 7th shows the same arranged according to the ages of the sick. The sick at their own homes numbered 32,977, or 1 in each 190 persons.

The diseases specified in the T. amount to 109 in number; they are systematically arranged. In each T. showing the diseases of a province, there are headings to distinguish the patients in towns from those in the country; and headings for the sick in infirmaries and asylums, and in workhouses. By an examination of one of the T. in the appendix, the number reported to be affected with each or either of the 109 specified diseases in any of the counties or chief towns of the kingdom can be ascertained.

The number of cases of diseases and injuries of all kinds reported as having existed on the night in question was 104,495. Of these 7284 were of blindness; 5074 of insanity; 4848 of idiocy, and 4337 of deaf-dumbness—forming together more than one-fifth of all the diseases reported upon. Of zymotic or epidemic, endemic and contagious diseases, there were 34,998 cases, of which 13,777 were of fever, and 6716 of dysentery. Of 69,497 cases of sporadic diseases, 24,522 were of the nervous system; 534 of the circulatory organs; 10,509 of the respiratory organs; 4511 of the digestive organs; 289 of the urinary organs; 693 of the generative organs; 8822 of the locomotive organs; 7167 of the tegumentary organs; 10,394 were diseases of uncertain seat; 1224 were cases of injury by accident; and of 832 cases the nature was not specified. The 24,522 cases of diseases of the nervous system included the cases of blindness, insanity, idiocy, and deaf-dumbness (in all 21,543) before enumerated.

The cases of fever were more than double the number of those of any other disease. They were very unequally distributed throughout the provinces:

In Leinster there were	3056 cases in a pop. of	1,672,174
In Munster	6107	1,857,244
In Ulster	1917	2,011,786
In Connaught	1541	1,012,006

It thus appeared that in Ulster there was not quite one-third of the per-centage of persons

affected as compared with Munster, and little more than *one-half* of the Connaught numbers.

The Rep. also admits of a comparison of the prevalence of fever in cities and towns as compared with rural districts; and such a comparison indicated that in certain parts of the island there was but little difference between town and country; in others that the numbers were considerably higher in towns. Waterford is an instance: in a pop. of 33,900, the fever cases reported were 176—while in the county (exclusive of the town), with a pop. of 164,051, there were only 282, the proportion being in relation to the town 880.

The amount of the pop. unavailable as working members of the community differed materially in the 4 provinces. In speculating upon the causes of these provincial disproportions, the Commissioners pointed out that it was necessary to consider "the relative amount of pop.; the character and industrial pursuits of the people; the extent of medical relief; the avenues for employment, and the incentives to crime." They add:

Viewing the census in the light of a social survey—in which the condition as well as the enumeration of all classes of the people should be considered—we believe that a knowledge of the nature, causes, and extent, as also the distribution and results of the epidemic and sporadic diseases of this country, may tend to assist the legislature in future sanitary investigations and improvements: not only in the necessary provision for the destitute, but also in applying suitable relief to the suffering.

It must always be remembered that the census of 1851 followed close upon the Potatoe Famine in Ireland, and hence that at least some of the results of that period were special.

We give the preceding details because they are the first of the kind of which we have any knowledge. They unfortunately bear upon the face of them evidence that they must be regarded as approximative only.

Dr. Corrigan, reviewing the same returns before a Parl. Com. on the Dublin Corp. Water Bill [April, 1861], said:

As evidence how little these returns of disease, obtained by the Census Commissioners, were to be depended upon, he might mention, that in all Ireland on the night of 31 March, 1851, there was not one person returned as labouring under St. Vitus's dance; only 4 were suffering from *delirium tremens*, only 16 under nervous diseases, only 14 from bronchitis, only 16 from teething, only 60 from hemorrhoids, only 92 from dyspepsia, only 2 from diabetes, only 4 from scald (though the number in the workhouse hospitals same night was upwards of 2000). It further appeared from the returns that not a single person had died from syphilis in Dublin for a period of 10 years; and yet the Reg.-Gen. for Eng. gives a return of nearly 3000 deaths by congenital syphilis in a period of 7 years alone.

In 1851 Col. W. H. Sykes read before the Statistical So. of Lond. a paper: *Mort. and Chief Diseases of the Troops under the Madras Gov., European and Native, from the Years 1842 to 1846 inclusive, compared with the Mort. and Chief Diseases of 1847*. We have spoken of this paper under CLIMATE; we shall follow it up under INDIA.

At the meeting of the Brit. Asso. in 1852, Dr. Henry Cooper, M.D., read a paper: *On the Relative Prevalence of Diseases in Hull, and the Effects of Season upon Disease*. The value of the paper consists mainly in this—that it deals with disease "irrespective of fatal issue"; whereas the great majority of the writers whom we have already noticed, and are to note, deal with disease in relation to its fatal issue only. Dr. Cooper had recourse to the books of the medical charities in that borough, which had "for a greater or less period, and with more or less exactness, recorded the names, ages, and diseases of applicants for relief; and it is from their books that the T. now before us have been compiled." He continues:

In the first T. are classified 21,712 cases from the books of the infirmary and dispensary of this town, extending over a period of 20 years in the former inst., and 3 in the latter. The sources from which these cases have been derived (*i.e.* the out- or in-patients) have been separated, as indicating different classes of cases as well as intensity of disease. The cases have . . . been further analyzed into years, showing what diseases are liable to assume an epidemic character, and in what years they have done so. . . . The cases are classified in 8 divisions, which show, at a glance, the great tendency to pulmonary, rheumatic, and dyspeptic disorders, and the comparative exemption from fever—from which Hull suffers perhaps less than any other town of its size. This is the more remarkable, as we have had too fatal evidence that the town is liable to those epidemic influences which have always been considered closely analogous to fever in their laws of origin and propagation. The proclivity to pulmonary and rheumatic diseases will excite no surprise when the geographical position of the town, and the large quantity of water by which it is surrounded and intersected, are considered. It is not necessary that I should particularize the other less prevalent diseases. . . . I have been compelled to omit from the enumeration the zymotic diseases generally, because they are specially excluded from the hospital treatment, and only casually become dispensary cases. Their number as recorded in these books is therefore so small as to give a most inadequate representation of this most important and numerous class of diseases.

The writer proceeds with other details, and says a diagram had been compiled for the whole series of 21,712 cases, extending over 10 years, "and may therefore be presumed to give a tolerably near approximation to truth." He continues:

We remark the high point at which pulmonary diseases start at the commencement of the year, and which they maintain with slight fluctuations till the end of May, when they fall very rapidly to the minimum in Aug., and rise again equally through the autumn months to the winter level in Dec. Dyspepsia begins low in the winter, runs rapidly to its culminating point in May, in which it coincides with pulmonary affection; it attains however a much greater height than the latter, and then falls rapidly through the autumn, finishing at the medium winter level. Rheumatism has its maximum in winter, with an exacerbation in Aug. and Nov., which coincides well with actual obs.; it takes a rapid rise from Dec. to Jan. Fever maintains the most equable course of the 4 curves: it also culminates in May (which should, so far as these three diseases are concerned, be a very unhealthy month), has a sudden depression in July, rises above the level in the autumn months, and again sinks to the winter level in Dec.

I believe that these results correspond accurately with the experience of practical men in this town,

both as to the relative prevalence of diseases, and the seasons at which their greatest developments take place, and it is a satisfaction to have confirmation and exactness given to practical views by the application of the numerical method.

A few words on two or three important forms of disease, our records of which do not furnish materials for numerical illustration. Ague was, 25 years ago, very frequently seen in our hospital, the cases being principally supplied from the low wet clays of Holderness, and the fens of Lincolnshire. For 10 or 15 years, however, ague has been a rare disease—a fact which was attributed, no doubt correctly, to the greatly improved drainage of both these districts, particularly of Holderness, in which a very complete system has been carried out. . . .

An examination made by me in 1845, . . . showed a very large per-centage of children exhibiting marks of that disease [Scrofula], frequenting the public schools of the town, and generally of the lower orders.

This paper shows in a very marked manner what may be done when there is an enlightened disposition to use the means at command.

Dr. Farr, in his Special Cholera Report, 1852, said, "England, according to the latest obs., is the healthiest country in the world; yet it is not easy to calculate in ordinary times her losses by diseases from which parts of the country are free." He expressed a very reasonable hope that the progress of social improvement and of medical science might remove this state of things.

Mr. E. J. Farren says, in the *Assu. Mag.* vol. iii. p. 205 (1853), "The mere circumstance of age is of itself to be reckoned, if not among the actual diseases of life, yet of so cognate a character as to be capable of creeping on by such insidious degrees as to leave a man in apparent health all his life, and yet become the ultimate cause of his death." Again, "However firmly a man may appear to be in possession of what is called select health, yet that he is still infected with the growth of the disease called *time or age*; and that when seeking a year's, or a day's, nay even a moment's ins., he should be relatively charged in that respect." [MORT., LAW OF.]

In 1853 Dr. Henry Cooper, M.D., read before the British Asso. a paper: *On the Relative Prevalence of Diseases in Hull, and the Effects of Season upon Disease.* [HULL.]

In 1853 Lord Palmerston took occasion to remind the Presbytery of Scotland in his now famous letter, that the affairs of this world are regulated by natural laws, on the observance or neglect of which the weal or woe of mankind depends. One of these laws connects disease with the exhalations of bodies; and it is by virtue of this law that contagion spreads, either in crowded cities, or in places where vegetable decomposition is going on.

In the art. "Vital Statistics," in McCulloch's *British Empire*, 4th ed. 1854, from the pen of Dr. Farr, that learned writer approaches the subject before us as follows:

The diseases which constitute the sickness, and which disable and carry off the people of this country, form the next section of this investigation. Man's body is compounded of many parts, performing many offices, so diversified in nature, that there is, perhaps, no extensive train of phenomena in the universe which does not find its counterpart in his organization; crowned with other and higher faculties of sense and intellect, far removed from anything observed in inorganic matter. This complexity and completeness of the human body almost justified the ancient opinion that "man was microcosmus, an abstract or model of the world." For, dust and ashes as it is, who can survey the ruins of the human frame, the bare skeleton to which it is at last reduced, and in clothing it with muscle and tendon, artery and vein, delicate and incessant chemical action, forces adjusted for circulating fluids, and producing motion, sight, and all sense,—affection, passion, thought—the history of all it may have done and suffered—without feeling that a world wrecked in space—a planet in all its aberrations—offers a less interesting spectacle than the phenomena manifested by the human body in its progress to death!

With whatever precision the inquiries in which we have hitherto been engaged may measure the magnitude of the national loss by sickness, in seeking remedies, a careful examination of the derangements and distempers to which the variable composition of man's body has made it accessible is required; for disease and death come not in one form or garb, nor can they be arrested in one way: "this subject of man's body," Lord Bacon justly observes, "is, of all other things in nature, most susceptible of remedy, but then that remedy is most susceptible of error."

The first and most important statistical division of diseases is into epidemics, which attack and often destroy in a short time great numbers of people; endemics, such as marsh fevers, confined to particular localities; and sporadic affections, occurring in an isolated manner, under the ordin. atmosp. influences.

We shall follow up these divisions of the subject under their appropriate heads; in the mean time we propose to accompany Dr. Farr through the article in question. Under "Sickness" we find the following:

The sickness to which mankind is liable does not occur at any one time or age, but in an interspersed manner over the lifetime of each person. The constant quantity of sickness is kept up by a succession of diseases attacking the body at intervals and in paroxysms, which, however irregular they appear in a limited sphere of obs., are really definite in number, and separated by stated spaces. As a certain order is preserved in the performance of the healthy functions, so their derangements in similar circumstances also observe an order and regularity of succession.

To accuse the human frame of perpetual malady is as ridiculous as to attribute, with some theological writers, unintermitting wickedness to the human heart; but if every alteration of the multiplied parts of the human body, every transient trouble of its infinite movements, every indigestion of man, and every fit of hysteria in woman, were reckoned, few days of human life would remain entirely clear; and if the same scrutiny were extended to the state of the brain, the world may very civilly be sent to *Anticyra—naviget Anticyram*. In determining the quantity of sickness, and the attacks of disease, the slightest effects are therefore passed over; as, whatever difference there may be in the representation and expression, it is prob. they bear a tolerably constant relation, in the same class of society, to the severer cases recognized, and directly diminish production by putting a stop to labour.

This latter aspect of the case will be fully considered under SICKNESS. *The mort. among the persons attacked augments with the age at the same rate as the mort. among the entire number living.*

Returning to "Diseases":

The diseases proving fatal in childhood, manhood, and old age, are not the same: hence to determine the peculiar diseases—the nature of the dangers—we have to encounter at different periods of life becomes a most important problem. Very few statistical obs. exist in which the deaths from each disease in different ages are enumerated.

The violence of disease, Hippocrates somewhere says, is in proportion to the strength of the patient; and morbid anatomy proves that when there is great debility from age, or any other cause, inflammation runs through its course without manifesting distinctly its characteristic symptoms. The great number of deaths ascribed to natural decay, old age, and to weakness, are for this reason improperly considered examples of death without disease; although death sometimes does happen without any apparent organic cause.

Life divided into 5 vicennial periods is more secure in the second; the fatality of nearly all diseases increases afterwards in a geometrical progression.

One of the most important results presented in this paper is that the character of diseases changes in a determined ratio at different periods of existence. The T. indicate not only the degree but the kind of danger we have to encounter at all ages; for example, in the 2nd vicennial period (20-40) the deaths from consumption at Carlisle constituted 50, at Philadelphia 34, in the *Equitable* So. 26 p.c. of the deaths from all causes. In the 3rd vicennium the nature of the danger has altered; for the deaths from consumption contribute but 23-28, or 11 p.c., to the entire mort. From T. of this description the prob. of death from each class of disease can be calculated at all ages.

We have reviewed the T. here referred to under DEATH, CAUSES OF. The learned Doctor, by way of conclusion, furnishes a sketch in outline of the diseases most fatal at different periods of life:

In the first period (0-20) the eruptive fevers, inflammations, scrofulous and dropsical effusions are most to be dreaded. . . . Cold often produces inflammation of the lungs in winter; but too much tenderness in this respect and the accustoming of boys to a delicate diet weaken the constitution. Between 20 and 40 consumption, inflammations, fevers and epidemics, are the most deadly shafts of death; which, as Sir James Clark has shown, a judicious course of hygiene in this period may do much to disarm. The same class of disease maintains the preponderance till 60; but in the period following (60-80) dropsies and inflammations increase, while apoplexy gains a great ascendancy. After 65 a man should undertake nothing requiring great intellectual exertion or sustained energy; warmth, temperance, tranquillity, may prolong his years to the close of a century; a rude breath of the atmosphere, a violent struggle, or a shock, will terminate his existence. The apoplexy of the aged can with care be averted for several years; but it is perhaps the natural death, the euthanasia of the intellectual; their blood remains pure, the solids form to the last, when a fragile artery gives way within the head, the blood escapes, and by a gentle pressure dissolves sensibility at its source for ever. The life is no longer there,—the corporeal elements are given back to the universe!

In 1854 Mr. John Angus, of the Gen. Regis. Office, read before the Statist. Soc. a paper: *Old and New B. of Mort.; Movement of the Pop.; Deaths and Fatal Diseases in London during the last 14 years.* This paper has been noticed under B. OF MORT.; and will again be prominently quoted under LOND., DISEASES OF; we do not therefore propose to lay it under requisition at this point.

In 1855 Mr. Alfred Haviland, Surgeon, pub., *Climate, Weather, and Disease; being a Sketch of the Opinions of the most celebrated Ancient and Modern Writers with Regard to the Influence of Climate and Weather in producing Disease.* The writer says, under "Modern Obs., etc., p. 67:

As I have remarked before, the weather does not always act immediately upon the system and produce disease. Heat and moisture may certainly make a decided impression upon the body, and a continuance of this impression may induce a train of phenomena that in the end would be sufficiently marked to justify the term disease; and this state of the atmosphere may affect a great number of people in the same manner, and thus produce an epidemic. The wind, the rain, and the sun, however, act more frequently in an indirect manner. How often do rivers swell with the mountain torrents, flood a neighbouring tract of land during the winter. The stream subsides, not so however the adventitious lakes that it has caused: time alone is required for such a mass of water to be drained off or evaporated. During this slow process, the land plants die, and form a decomposed mass at the bottom, which, when the heat of the summer sun pours upon it, is resolved into its primary elements, that, under the same influence, combine again to form a deadly poison, which so far has eluded both the chemical test and the microscope. These noxious exudations then are wafted by the wind over miles of country, polluting, as they travel, the air we breathe, and thus insinuate themselves into our veins, where too frequently they meet with an ally ready to act in concert with them. In a review of the hist. of the causes of disease and death, it is remarkable how prominent a part the vegetable creation has ever played, from the first tree, whose fruit was the medium of temptation to Eve. . . . In the dead putrescent masses of jungle, there is a connexion that must strike any mind who reflects upon the subject. . . .

Again:

Diseases, like plants, may be classed into annuals, evergreens, and deciduous. The last are those which almost entirely disappear at certain seasons, but which as certainly reappear as the seasons themselves do,—let diarrhoea be a type of this class. Then we have the evergreen phthisis, with its steady mort. throughout the year; and lastly, the annuals are those epidemics which flourish for a season in a certain district, and when they have racked out the soil in which they grow, decline and disappear, until some other epidemic has prepared the air for their reception. We know that many diseases follow each other in regular order, and, as one declines, another springs up and flourishes as it were upon the ashes of its predecessors. We are ignorant, however, so far, of the nature of these invisible disease manures, which foster the handmaids of death; and even did we possess the knowledge that we confess to lack, it would be of little use unless we could control it, like the agriculturist does his soils, who, by experience and scientific cultivation, can render his land at the same time favourable to his crop and inhospitable to weeds.

Dr. Farr says in 18th Rep. of Reg.-Gen., 1855:

The liability to diseases at the various periods of life possesses great practical interest to the pathologist in the study of morbid changes, and to the physician who seeks to ward off their inroads.

In 1855 Dr. John Coldstream, M.D., Edin., read before the Brit. Asso. Meeting a paper, *On some of the results deducible from the Rep. on the Status [? Statistics] of Disease in*

Ireland, pub. with the Census of 1851. This writer (of whose labours we have been glad to avail ourselves) takes a more favourable view of the value of the results than we have been enabled to do (see 1851).

In 1855 Dr. W. A. Guy, M.B. Cantab, read before the British Asso. a paper: *On the Fluctuations in the Number of Births, Deaths, and Marriages, and of the Number of Deaths from Special Causes, in the Metropolis during the last 15 years from 1840 to 1854 inclusive*. In this paper are contained many valuable obs. upon diseases of the various Classes, especially of the Zymotic Class. It will be spoken of under ZYMOTIC DISEASES.

In 1855 Herr Hopf, late Man. of the *Gotha L. Assu. Bank*, contributed to the *Assu. Mag.* a paper, *On the Results of the Operations of the Gotha L. Assu. Bank for the first 25 years of its existence, particularly with respect to the Mort. amongst the Lives Assu.* The author, amidst much other valuable information, furnishes a T. indicating the proportions p.c. of the persons who have died in any one class of age by each disease—showing thereby the intensity of the diseases causing death at the different periods of life. This T. we propose to give under DISEASES, INFLUENCE OF AGE UPON. But the writer offered some general obs. on the subject of diseases which we propose to notice at this point.

He found that the following 6 diseases claimed 77·79 p.c. of the entire deaths, viz. :—common fevers, 15·87 p.c.; chronic disorders of the respiratory organs, 15·45 p.c.; apoplexy, 13·78 p.c.; local inflammations, 12·25 p.c.; chronic abdominal diseases, 11·46 p.c.; dropsy, 8·98 p.c. More than three-fourths of all the deaths were thus accounted for. The influence of different diseases at different ages might be generalized as follows:—In the deaths under 50 years of age, chronic diseases of the respiratory organs, common fevers, and next to these, though in a lower degree, inflammations prevail; beyond the 50th year these diseases are less apparent, and apoplexies, dropsies, and chronic abdominal diseases get the superiority by degrees. The T. referred to shows this with great clearness. The writer proceeds:

But the intensity or frequency of a certain disease at the different ages is not the same with the danger of being seized and carried off by it. This danger, or the lethality [LETHAL] of the disease, results from comparing the deaths caused by it with the number of the persons who had been assured in each class of age. The result of this comparison is contained in the following T., which indicates out of a 1000 persons living at a time how many died in the course of a year by the different diseases in each class of age.

This T. will be given under DISEASES, RELATIVE CHANCES OF DEATH BY.

Dr. Brinton, M.D., in his useful little book, *On the Medical Selection of Lives for Assu.*, gives an excellent résumé of the value of medical examination in the detection of disease. (See 3rd edition, 1861, p. 61.) [MEDICAL SELECTION.]

In 1857 Dr. W. A. Guy, M.B. Cantab, read before the Statistical So. a paper, *On the Ann. Fluctuations in the Number of Deaths from various Diseases, compared with like Fluctuations in Crime, and in other Events within and beyond the control of the Human Will*. This paper is one upon which much thought and laborious investigation have been bestowed. It will be noticed under other heads. For our present purposes we must be content with one short T.—the concentrated result of more extended tables given therein. This is a T. showing the fluctuations in certain special diseases, as deduced from the pub. “Causes of Death” in Lond. during the 7 years 1848–54. “The rate of fluctuation is expressed in round numbers most nearly approximating to the true figures.”

Cause of Death.	Fluctuation.	Cause of Death.	Fluctuation.
1. Cholera	168	13. Thrush	11
2. Influenza	79	14. Inflammation of Lungs ...	10
3. Smallpox	50	15. Croup	10
4. Scarlatina	47	16. Scrofula	10
5. Diarrhœa	32	17. Tabes Mesenterica	8
6. Hooping Cough	32	18. Paralysis	6
7. Measles	31	19. Convulsions	6
8. Typhus Fever	19	20. Water on the Brain	6
9. Erysipelas	17	21. Pulmonary Consumption ...	6
10. Asthma	16	22. Apoplexy	6
11. Bronchitis	13	23. Inflammation of Brain ...	5
12. Epilepsy	12	24. Cancer	4

The author points out:

The highest rate of fluctuation belongs to diseases of the zymotic class; an intermediate rate to diseases of the organs of respiration; the lowest rate to other local diseases, including those which consist in a degeneracy of the textures of the body; and a low rate of fluctuation to that class of deaths in which human volition plays a principal part. Or if causes be substituted for effects, the proposition will assume this shape:—The causes which give rise to epidemic maladies are subject to great variations of intensity from year to year; those which occasion diseases of the organs of respiration are less variable in their operation; while the changes that take place within the body itself, and issue in the production of fatal local diseases, display an extreme degree of steadiness and uniformity.

In 1858 Dr. E. Headlam Greenhow, M.D., presented to the then General Board of

Health, a report: *Papers relating to the Sanitary State of the People of England; being the results of an inquiry into the different proportions of Death produced by certain Diseases in different Districts of England*, etc. He therein drew especial attention to the extreme inequality with which certain fatal diseases prevail in different parts of England; and pointed out that the diseases thus unequally prevailing are the diseases which are most easily prevented. We propose to furnish our readers with a brief abstract of the contents of this paper.

The deaths which occurred during the 7 years 1848-54 in each of 105 separate regis. districts of England, as well as in each of the regis. divisions of the country, and in each of 23 regis. counties, were classed according to the respective diseases which occasioned them; so as to show, with regard to each given area, how many deaths during the 7 years had been occasioned there by fever, how many by diarrhoea, how many by consumption, and so forth. Then, for purposes of comparison (as the local populations were of various magnitudes), the different local death sums were all reduced to a radix of 100,000; and the death-rates thus obtained were used, with certain qualifications, as the basis of the above-mentioned argument. The following summaries may be given to show results arrived at:

1. *Ann. Death-rates by Diseases which are either wholly, or almost wholly, preventable under good sanitary arrangements, ranging in different districts:*

Cholera.	Diarrhoea and Dysentery.	Continued Fever.	Smallpox.
From nothing to 403	From 4 to 345	From 21 to 209	From nothing to 146

2. *Ann. Death-rates by Diseases which to some considerable extent are inevitable, but of which the severity or frequency may be controlled by good sanitary arrangements, ranging in different districts:*

Tubercular Phthisis in women.	Non-Tubercular Lung Diseases in men.	Common Infectious Disorders in Childhood.	Convulsive Disorders of Childhood.	Pulmonary Affections of Childhood.
From 229 to 588	From 66 to 869	From 694 to 2149	From 280 to 3832	From 213 to 2897

The conclusion which the writer drew from these facts and his general investigation was:

That in certain districts of Eng.—sometimes by good fortune, sometimes by good local government—definite causes of disease must have been kept at or near their least conceivable activity; while in other districts of Eng. the same causes must have been prevailing with as little check as if the community had been savages, to whom science had never taught her first and simplest lessons.

In a paper by Dr. H. W. Rumsey: *On certain Deficiencies in our Public Records of Mort. and Sickness, with suggestions for an improved and extended National System of Registration*, read before the Social Science Congress, 1859, that indefatigable writer points out that the sanitary state of the people is inferred solely from the number of deaths—that is, from one only of the results of sickness—no public account being taken of *the number and duration of the attacks which shorten the effective lifetime of the pop.* He proceeds:

Facts are accumulating to prove that the mere number of deaths occurring in any locality bears no constant or even approximate ratio to the real amount of unhealthiness existing there. As a necessary result of improvements in domestic management and medical treatment, and owing to the removal or absence of those more virulent agents of destruction which, by sharp and decisive strokes, prematurely sever the thread of life, its duration has been lengthened in our great cities; but at the same time the sickly and infirm period of existence has been prolonged prob. in a greater degree than even life itself. Chronic diseases, or at least functional disorders, have increased. Vital force is lowered. Man's work is arrested; his duties are unperformed; his objects fail; though he still lives. Weakly diseased children are now mercifully helped, as they never were in olden time, to grow up into weakly ailing adults, who, in their turn, propagate with abnormal fecundity an unsound progeny. Is this true sanitary progress? Does it deserve the ostentatious parade of a decreasing death-rate?

Lastly, personal antecedents and remote causes of deaths now generally escape notice. The deaths of those who merely enter a district to die there belong rightfully to another locality; and vast numbers succumb in our large towns, in seaports, in public estab., hospitals, asylums, workhouses, and prisons, whose diseases were not acquired in the places where they died, and who can scarcely be said to have lived there. *The mere death-rate, therefore, without the life-rate*, of the inhabitants may, and does, lead to most fallacious conclusions as to local unhealthiness.

In 1859 Dr. E. Headlam Greenhow, M.D., Lecturer on Public Health at St. Thomas's Hospital, etc., read before the Statistical So. a paper, *On a Standard of Public Health for England*. The author says:

As a teacher of sanitary science I have found it desirable to have a standard of reference, showing what may be termed the normal mort. produced by particular diseases in healthy places. I say the normal mort. produced by particular diseases, because while there are certain diseases, the products of local impurity, which perhaps ought not to exist in a well-ordered community, there are other diseases, which, although partially preventable, would prob. cause a definite amount of premature death, even under the most favourable circumstances; of death, that is to say, arising from other causes than natural decay.

After referring, in terms of well-merited eulogy, to the labours of Dr. Farr, in the early Rep. of the Reg.-Gen., towards comparing the relative fatality of certain diseases in urban and rural districts, the writer proceeds :

Now that the regis. of the causes of death has existed for 20 years, comprising a great variety of seasons, and almost every degree of diffusion of the ordinary epidemic and contagious dis. it seems desirable to make a more analytical investigation of the different prevalence of certain dis. in *healthy* and *unhealthy* places, so far as this can be done by means of the death regis. It is true, indeed, that the death regis. do not correctly represent the prevalence of disease; for the *amount* of a disease, that is the number of persons *attacked* by it, and its *intensity*, as measured by the proportion of fatal cases, bear no constant relation to each other, but vary in different periods and in different places; but they are at present the only available data from which the prevalence of disease can be estimated. And, as large groups of districts, which comprise several dissimilar towns, or the rural districts of separate counties, must commonly include districts of diverse character and of different degrees of salubrity, it seems desirable to select smaller and more compact areas, possessing similarity of character, both as regards the state of public health, climate, and the habits, occupations, and other conditions of their inhabitants. The pop. of such selected districts should be at least equal to that of a considerable town; and to insure, as far as possible, a fair average amount of mort. from epidemic and contagious diseases, the calculations should be extended over a long series of years. Length of time being thus substituted for breadth of space, the results of such investigations would prob. be quite as reliable as those obtained from the more extended areas and larger pop. employed by the Reg.-Gen. in the valuable reports to which I have already referred.

The pop. of many of the healthiest rural regis. districts is, however, obviously enough, too small to afford a fair standard of comparison; neither is the public health of rural districts of almost exceptional salubrity always properly compared with that of less healthy places. Children and adults, boys and girls, men and women, die in different proportions; and as the aggregate mort. of a place includes the deaths of persons of both sexes, and of all ages, whilst the proportion of the living of each sex and of each age varies much in different places, it is necessary for an accurate comparison of the sanitary state of any two places by means of their statistics of death, to compare the rate of mort. separately for each sex and for each period of life. Unless the ages both of the living and the dead be taken into consideration, a place which contains an excessive number of children under 5 years of age, when the proportion of deaths to the number of living is large, may contrast unfavourably with another place, a smaller proportion of whose pop. consists of persons of tender years; and yet the latter may, perhaps, really be the unhealthiest district of the two. And so likewise a rural district, in which only a limited, and nearly constant number of persons can find employment, may seem to suffer less from phthisical disease than it really does, unless the phthisical death-rate be calculated separately for the period of early manhood, because the emigration of young adults produces in such districts a comparative deficiency of persons of that period of life when phthisis is chiefly prevalent. If, however, on the other hand, the towns to which young adults resort for employment be not too distant from their country homes, many of them, when suffering from serious illness, which has perhaps been caused, or at least developed by the unfavourable circumstances of their urban residence, by dissipation, or by the unhealthy character of their occupations, will naturally return to their families, and there dying swell the death rolls of rural districts by the add. of deaths chiefly or altogether attributable to urban influences.

Thus there are sources of fallacy in the attempt to derive a standard of the proportion of deaths produced by particular diseases in healthy places, either from the deaths in regis. districts of small pop., or from the deaths in groups of healthy districts taken promiscuously from different and frequently more remote parts of the country. The objection to the latter lies in the fact that there is often an absence of conformity in the character and circumstances of different pop. The former is liable to the objections already detailed, and to the want of confidence that must always be entertained respecting averages deduced from a very limited number of facts.

After this carefully considered preliminary statement, we are naturally anxious to be informed of the course of investigation the author actually pursued :

It occurred to me some months ago, that these sources of fallacy might, in a great measure, be obviated by selecting groups of contiguous healthy districts, comprising an extensive area of country and containing a pop. sufficiently large to afford a considerable number of deaths. I say *groups of contiguous* healthy districts, because since the climate, and the race, occupations and habits, of the people vary much in different parts of England, I have thought it desirable to select groups of districts from several parts of the country. In furtherance of this plan, I have selected 3 compact groups of contiguous healthy rural regis. districts, each comprising a considerable area of country, and containing a considerable pop., and have calculated the rate of death from certain diseases of each group of districts, in the same manner as if it formed but a single regis. district. The descriptions of these groups, and the results of my investigation into their mort., form the subject of this paper, which I am induced to offer to the notice of the Soc., in the hope that such standard death-rates as I have found useful for my purpose may not be unacceptable to other inquirers, until they be superseded by standards of a more authorized and perfect character.

The 1st group of districts comprised the regis. districts of Glendale, Rothbury, Bellingham, and Haltwhistle in Northumberland, and of Brampton and Longtown in Cumberland. These districts, which extend over hilly ground nearly from the Solway Firth to the German Ocean, comprise an area of 1256 sq. miles, and their pop.—almost entirely agricultural—in 1851 was 56,637. There are two small towns, the pop. in 1851 being 3074 and 2142 respectively. The most densely inhabited portion having 76 inhabitants to a sq. mile; other portions having 18 only. The average ann. death-rate of the entire group treated as a single district for the 9 years 1847–55, the author found to be 16 p. 1000 of all ages and both sexes. This is hereafter distinguished as *The Northern Group*.

The 2nd group consisted of the regis. districts of Godstone, Reigate, Dorking, and Hambledon in Surrey, and of Petworth and Midhurst in Sussex. This group, which embraces in part a hilly district, contains an area of 470 sq. miles, with a pop. of 71,330—chiefly agricultural—in 1851. It embraces 4 towns—Reigate, pop. 4927; Midhurst, comprising several parishes, pop. 7021; Dorking, 3490; Petworth, 2427, all in 1851. The average number of persons p. sq. mile varied from 129 in Godstone to 182 in Dorking. The average ann. rate of mort. during the 9 years 1847–55 the author found to be 17½ p. 1000 of all ages and both sexes. This is termed *The Southern Group*.

The 3rd group was formed of the regis. districts of Barnstaple, South Molton, Crediton, Okehampton, Torrington, Bideford, and Holsworthy in Devonshire, and of Stratton,

Launceston, and Camelford in Cornwall. The entire district, which lies in the north of Devon and Cornwall, contained an area of 1449 sq. miles, and a pop. of 183,154 persons. The density of the pop. ranged from 84 to 171 p. sq. mile. The pop. being again chiefly agricultural, but having a small maritime and manufacturing element, the latter consisting of making lace and gloves, etc., by women, chiefly at their own homes. Nearly one-fifth of the entire pop., viz. 35,186, belonged to towns, of which 11,371 was claimed by Barnstaple. The ann. average death-rate the writer found to be rather more than 17 p. 1000, including persons of all ages and both sexes. This is termed *The South-Western Group*.

The 3 groups of healthy districts here described may very fairly be employed as standards, with which the mort. of other places from particular diseases may be compared. They are each sufficiently populous to avoid the doubt apt to be entertained when averages are founded upon a smaller number of deaths that occur in a small pop. To avoid the errors that might arise from the varying prevalence of contagious and epidemic diseases, at different periods, the calculations extend over the 9 years 1847-55—this particular term being selected in order that the year 1851, in which the last census was taken, should be the middle year of the series; for I wished to use the pop. returns of the census as the divisors in calculating the death-rates. It might, perhaps, have appeared more accurate if the average pop. of each group of districts had been estimated according to the rate of increase in each place during the decennial period intermediate between the census of 1841 and that of 1851; but the accuracy of such an estimate would have been more apparent than real, for it would have rested on the assumption that the movements of the pop. had been uniform, and its progress constant, whereas both are liable to many disturbances. I believe the plan I have adopted is as nearly accurate as can be attained from the data at my command, and there is no practicable plan which is not open to the chance of minute inaccuracy. The results of my investigation must, therefore, be received only as close approximations to truth; and yet, as the errors that can arise from the different rate of progress of a pop. at different periods so near to an accurate census as 4 years on either side of it can be only fractional, they may be safely employed for the purpose they are intended to serve, provided undue importance be not attached to minute differences in comparing the death-rates with those of other places.

The following are the 3 principal T. resulting; and they are especially valuable in the light of standards of comparison—as their compiler intended them to be—as to the mort. from the same diseases in other districts:

I.—Average ann. proportion of Deaths produced by the several under-mentioned Causes in each Group of Districts during the 9 years 1847-55, WITHOUT DISTINCTION OF AGE:

Causes of Death.	NORTHERN GROUP. Pop. in 1851, 56,637. Area in sq. miles, 1256.		SOUTHERN GROUP. Pop. in 1851, 71,330. Area in sq. miles, 470.		SOUTH-WESTERN GROUP. Pop. in 1851, 183,154. Area in sq. miles, 1449.	
	Death Rates.		Death Rates.		Death Rates.	
	Male p. 100,000	Female p. 100,100	Male p. 100,000	Female p. 100,000	Male p. 100,000	Female p. 100,000
All Causes	1640	1612	1766	1762	1757	1716
Diseases of Res- piratory Organs }	97	75	199	166	251	181
Smallpox	15	12	8	5	10	8
Measles	24	22	12	11	14	12
Scarlatina	76	57	56	61	75	68
Whooping Cough ...	17	30	26	38	36	39
Croup	21	21	15	15	28	24
Diarrhoea	17	15	36	33	21	17
Dysentery	4	3	7	7	2	3
Cholera	9	8	6	4	8	8
Influenza	24	26	23	21	30	32
Typhus	49	51	71	77	59	68
Erysipelas	10	6	11	8	8	7
Scrofula	8	7	17	18	12	7
Tabes Mesenterica	6	7	18	20	8	7
Phthisis	200	229	212	288	195	214
Hydrocephalus ...	26	17	35	27	29	24
Cephalitis	10	11	13	8	14	12
Apoplexy	28	20	52	67	60	52
Paralysis	56	62	37	43	35	40
Convulsions	8	11	108	76	56	41
Disease of Brain, etc.	9	9	20	16	13	12
Bronchitis	30	23	58	53	49	44
Pneumonia	39	26	101	74	161	107
Teething	9	7	12	10	9	7

II.—Average ann. proportion of Deaths produced by the several under-mentioned Causes in each Group of Districts during the 9 years 1847-55, IN CHILDREN UNDER 5 YEARS OF AGE:

Causes of Death.	NORTHERN GROUP.		SOUTHERN GROUP.		SOUTH-WESTERN GROUP.	
	Death Rates.		Death Rates.		Death Rates.	
	Male p. 100,000	Female p. 100,000	Male p. 100,000	Female p. 100,000	Male p. 100,000	Female p. 100,000
All Causes	3693	3194	4080	3450	4099	3467
Diseases of Res- piratory Organs }	253	156	564	513	716	550
Smallpox	67	61	14	28	42	41
Measles	143	132	69	57	86	80
Scarlatina	336	264	216	220	300	290
Hooping Cough ...	112	233	188	262	262	292
Croup	126	132	101	66	173	162
Diarrhoea	29	49	163	102	79	48
Dysentery ... ..	...	3	18	21	1	2
Cholera	8	3	7	...	20	11
Influenza	6	6	46	33	44	36
Scrofula... ..	20	6	21	26	20	20
Tabes Mesenterica	40	43	101	116	42	39
Phthisis... ..	75	64	101	76	153	154
Hydrocephalus ...	126	92	193	137	156	110
Cephalitis	20	21	25	9	20	28
Convulsions	60	74	792	532	420	306
Disease of Brain ...	17	25	16	24	22	14
Bronchitis	67	43	115	109	84	72
Pneumonia	169	104	411	364	598	451
Teething	66	52	94	71	67	56

III.—Average ann. proportion of Deaths produced by the several under-mentioned Causes in each Group of Districts during the 9 years 1847-55, IN PERSONS OVER 5 YEARS OF AGE:

Causes of Death.	NORTHERN GROUP.		SOUTHERN GROUP.		SOUTH-WESTERN GROUP.	
	Death Rates.		Death Rates.		Death Rates.	
	Male p. 100,000	Female p. 100,000	Male p. 100,000	Female p. 100,000	Male p. 100,000	Female p. 100,000
All Causes	1318	1378	1423	1495	1407	1467
Diseases of Res- piratory Organs }	73	63	144	111	182	128
Smallpox	7	5	8	2	6	4
Measles	5	6	3	3	3	2
Scarlatina	35	27	32	36	42	39
Hooping Cough ...	2	...	1	2	2	3
Croup	4	4	2	6	6	5
Diarrhoea	15	10	17	22	12	12
Dysentery	4	3	6	5	3	3
Cholera	10	9	6	5	7	8
Influenza	27	29	20	19	29	31
Scrofula... ..	6	7	16	17	10	6
Tabes Mesenterica	1	2	5	4	3	3
Phthisis... ..	219	253	229	322	202	223
Hydrocephalus ...	11	6	11	9	10	12
Cephalitis	8	9	11	8	13	9
Convulsions ... ..	...	1	5	4	2	4
Disease of Brain, etc.	8	7	20	15	11	12
Bronchitis	24	20	49	44	43	40
Pneumonia	19	14	54	29	96	58

His investigations extended to 23 particular diseases : but we must again fall back upon the author's own statement of the precautions observed in the process :

In order that the rates of mort. from all causes in the groups of districts might be compared with one another, and also with the gen. death-rates of other districts, I have calculated the average ann. proportion of deaths from all causes in each of the 3 groups for the 9 years 1847-55. To avoid the errors that might arise from the different proportions of males and females, and of persons in the several periods of life in different pop., and to secure the possibility of comparing like things with like in the use of the results as standard rates of mort., the death-rates have been calculated separately for each sex, for children under 5 years of age, and for persons over 5 years of age, as well as for persons of all ages. I have also calculated the rate of mort. from certain diseases usually most fatal after middle life for persons of each sex over 50 years of age. As the mort. produced by pulmonary affections is very different at the different periods of life, and that caused by consumption in particular is greatest in early manhood, I have calculated the proportion of deaths produced by phthisis and diseases of the respiratory organs in each sex separately for 8 different ages, viz. for children under 5 years, and between 5 and 15 years of age; for persons between 15 and 20; 20 and 25; 25 and 30; 30 and 40; 40 and 50 years of age; and for all ages above 50 years. The death-rates have in each case been calculated for 100,000 persons. This avoids the use of fractions, and will enable them to be more readily compared with my former papers on analogous subjects. That the paper may be more conveniently referred to as a standard of reference, I have arranged the detailed results of the investigation in a series of T. at the end.

Errors are so liable to occur in the regis. of the causes of death, and particularly in regis. deaths produced by disease of the lungs, by the several nervous diseases of infancy, and by diarrhoeal diseases, that I have considered it more reliable, and certainly more convenient, to group these diseases into classes. The main facts are in this manner brought before the eye without the incumbrance of details. There are also certain diseases which prevail chiefly, or almost exclusively, at particular periods of life; as the nervous diseases of infancy and the exanthematous diseases, which practically are all but limited to the period of life anterior to the 5th year; as apoplexy and paralysis, which are most frequently fatal after middle life; and as affections of the lungs, which, exclusive of phthisis, produce a considerable mort. at the two extremes of life, in infancy and old age, but are comparatively harmless at the intermediate period. I say diseases of the organs of respiration are comparatively harmless between childhood and old age, because the normal mort. they produce at that period of life is insignificant compared with the mort. at early and advanced age. But there are districts where the so-called normal condition is disturbed, and where a considerable mort. is occasioned by such diseases in middle life. Such cases are, however, exceptional; and I believe in every instance explicable by the prevalence of some particular occupation among the inhabitants, or by some other definite local cause.

Then by way of conclusion :

The purpose of this paper, as described in the title and introductory obs., is to supply a standard of the normal mort. produced by certain diseases in healthy places. It is indeed too prob. that the standard of health presented by the thinly peopled rural districts of Northumberland and Cumberland; of Surrey and Sussex, and of Devonshire and Cornwall, is at present unattainable for densely inhabited towns; unattainable because our acquaintance with the causes that modify the public health is still imperfect. On the other hand, a comparison of the death-rates of the several groups of districts with each other shows that conditions injurious to the public health must exist even in some of these healthy places. Why, for example, should the South-Western Group lose upwards of 200, and the Southern Group nearly 100 persons more by death ann. in proportion to their respective pop. than the Northern Group, unless conditions unfavourable to health exist in the two former, from which the inhabitants of the latter are exempt? Hence even these Standard Districts, the public health of which is at present so eminently superior to the average condition of the public health in England, must be received as only comparative standards, and not as affording a correct illustration of the rate of mort. that would prevail if life were prolonged to its natural duration. The fact that even some of these healthy districts present a higher than the normal rate of mort. does but afford add. encouragement for sanitary exertions, since a comparison of their death-rates with unhealthy places, or even of the country at large, demonstrates the great extent of the field which is open to such exertions. A single illustration will at once serve to show the extent of this field, and the advantage of possessing such a standard of the public health as I have here endeavoured to supply, and will form a suitable termination to this paper. Pulmonary affections of all kinds, including phthisis, produced on an average 98,960 deaths in E. and W. in each of the 9 years 1847-55. If the deaths from pulmonary affections in E. and W. in each sex, and for each period of life, had been at the same rate during these 9 years as in the Northern Group of Districts, the average ann. number of deaths would have been only 54,098. The two other groups of districts present a less favourable aspect. The average ann. number of deaths from pulmonary affections in E. and W. would have been 73,555 if the same rate of mort. had prevailed during the 9 years as in the South-Western Group; and 99,034 if the same rate of mort. had prevailed as in the Southern Group of Districts. If we may assume—and we may surely do so—that the healthy Northern Group pretty fairly represents the normal rate of death from affections of the lungs in this country, then is the mort. of England from this single class of disease aggravated to the extent of nearly 45,000 deaths ann. by the unhealthy, and, it may be presumed, in some measure removable, conditions to which the pop. of England is exposed.

Dr. Farr, in 22nd R. of Reg.-Gen., speaking of the fatality from diphtheria, in 1859, says :

The fertility of nature in the production of new diseases is only a proof of the necessity of perpetual vigilance in observing and combating them to the utmost of our ability at their sources; for in its zymotic diseases the solidarity of the human race is unquestionable.

Again :

The discrimination of diseases at one time confounded leads necessarily to the recognition of new types, and to new names. Thus under dropsy, diseases of the heart and kidneys were masked; and heart diseases of various kinds, as well as nephria [Bright's disease], are recognized as the seat and origin of diseases which were called simply dropsy in former times. The rise of the specified deaths by nephria from 430 in 1850 to 1258 in 1859 is due to recent medical discoveries. . . . The increase of deaths by cancer and heart disease is due to similar causes.

The late Prince Consort, in his opening address as President of the International Statistical Congress, held in Lond. in 1860, said :

One of the most useful results of the labours of the Congress has been the common agreement of all States to inquire into the causes of every death, and to return the deaths from the same causes under synonymous names, sanctioned by the Congress. It has in this instance set the example of estab. what is most desirable in all other branches of statistics, viz. the agreement upon well-defined terms.

... It is evident that, as long as a different sense is attached to these terms in different returns, their use for comparison is nil, and for simple study very much deteriorated; and still we have not yet arrived at such a simple and obvious desideratum! [DISEASES, CLASSIFICATION OF.]

The difference in the liability of the two sexes to diseases is due in some cases to structure, in others to occupation, in others to dress, in others to passion, and in others to causes which are at present unappreciable.—Dr. Farr, 23rd Rep. of Reg.-Gen. [FEMALE LIFE.]

At the Social Science Congress, 1860, Dr. J. A. Easton, M.D., Prof. of Materia Medica at the University of Glasgow, read a paper: *Poverty in Relation to Disease*. The writer says:

In entering upon this subject I submit as a postulate, that whatever depresses the vital force is either itself a direct cause of disease, or makes us more susceptible of its power, and less able to withstand its attacks. Now that poverty, according to the degree of it present, depresses more or less the vital energies of all who are under its deteriorating influence, has long been recognized as a fact, both in medical and social science.

Poverty, as already remarked, implies deficiency of suitable means of subsistence. For the proper support of life a certain amount of food is required daily; and without entering into minute scientific details, I may remark that our food should not only be below a certain daily amount, which may be regarded as the minimum quantity for the preservation of health, but that it ought to contain a due admixture of nitrogenous, or blood and tissue forming, and of non-nitrogenous, or heat-sustaining ingredients—the former being represented by flesh, meat, and bread; the latter by sugar, starch, and butter.

But while such direful consequences may be referred to as the well-known effects of the want of food, considered as whole, I wish on the present occasion to dwell more particularly on the circumstance that disease of a special nature may arise among those who have been subjected to long-continued scarcity of one or other of the above-named essentials of health-sustaining food.

The connexion between poverty and disease may be illustrated, in the second place, by considering the influences exercised over the animal economy by neglect of personal cleanliness. In the worst forms of poverty, in those graphically called abject, in which hope deferred has made the heart sick and the mind feeble, the tendencies of our nature—moral not less than physical—are all downwards, and among the former of these declensions, loss of self-respect, as exhibited in uncleanness of person, is painfully obvious. Now, that habitual uncleanness of the person tends to the production of disease, will be apparent from a brief consideration of the skin. [SKIN.]

I might next descant upon the physical evils among the very poor, traceable to insufficiency of light in their dwellings, favouring the evolution of scrofula; the too frequent proximity of these to accumulations of putrescent organic matter, engendering typhoid fever; and I might dwell on the puny development and untimely death of the hapless progeny that is born amid conditions so adverse to moral and physical culture; but these and other aspects of my subject I must pass by to consider, lastly, the bearings of poverty on disease, as exemplified in the huddling together and overcrowding of the hovels of the poor.

These are but the bear skimmings of a most thoughtful and well-written paper, by a practical man. The points are amplified in many of the articles of the present work.

The Commissioners for taking the Census of Ireland, 1861, again entered upon an inquiry regarding the "*Status of Disease in Ireland*," seeking returns "of the permanent and temporary diseases under which the pop. of Ireland laboured on the night of 7th April, 1861." We do not see any special feature calling for comment. The mode of procedure was the same as in 1851; and the results appear to have been generally of the same character. The total deaf and dumb was 5653; blind, 6879; lunatics and idiots, 14,098; total, 26,630. The lame or decrepid amounted to 4120; inmates of workhouses sick, 16,761 (out of total inmates, 50,010, or 1 in 3); sick in hospitals, 2993 (of whom 1716 were males, and 1277 females), in charitable inst. 2087 (of whom 456 were males, and 1631 females); sick in prisons, 461 (out of total of 4702 inmates). In add. to the numbers already accounted for—of whom indeed the whole were not sick—there were 28,193 persons (of whom males 13,662, females 14,531) sick at their own homes on the night of the census. This was 1 in every 203 of the pop. In 1851 the proportion had been 1 in 190. Of these 28,193 sick persons not in public inst., 26,699 were returned as being on account of their illness unable to follow their usual occupations; and 1494 were not prevented doing so. The proportion of sick in their own homes varied from 1 in 142 to 1 in 942 in the different localities specified, and in the provinces it was—in Munster, 1 in 218; in Connaught, 1 in 216; in Leinster, 1 in 198; and in Ulster 1 in 192.

Speaking of the sickness returns of 1851, and of the present returns (1861), the Commissioners say:

It was no doubt only an approximation to the actual number sick, many of whom were prob. omitted, either by partial miscarriage of the inquiry, or from motives of delicacy on the part of the patients or their friends. Still until an opportunity has been afforded of testing that, and the present returns by kindred vital statistics from other countries similarly situated with Ireland, they remain a standard for the proportion of the sick and the diseases under which they labour on a certain day. Moreover, they afford, by comparison of one date with another, a means of judging of the state of the public health at each decennial census period,—the only means which, together with the minute inquiry into the number, condition, and diseases of the deaf and dumb, the blind, lunatic, idiotic, epileptic, lame or decrepid, and the inmates of workhouses, asylums, hospitals, and prisons, has yet been devised for this purpose in Europe or elsewhere.

Dr. Stark says, in 7th Rep. of Reg.-Gen. for Scotland [returns for 1861]:

It has been found, when investigating the phenomena of the natural world, that most things have a tendency to return in cycles of longer or shorter periods. The above facts [Statistics of Zymotic Deaths, 1855 to 1861] would seem to show that the same is prob. true of disease. When the phenomena of disease shall be more carefully studied, it will prob. be also at the same time found that diseases spread like waves, gradually creeping over the country as storms do. This fact has been distinctly traced with regard to epidemic cholera; and is prob. true, more or less, of all epidemic diseases. For instance, the epidemic class of diseases attained their maximum mort. in Eng. in 1858,

while in Scotland the maximum was not attained till the following year,—as if the epidemic wave took nearly a year to travel northwards from the south of England to the north of Scotland.

At the Social Science Congress, 1861, several important papers were read on the subject of *Regis. of Dis.* These will be referred to in detail under DISEASES, REGIS. OF. Dr. Stark says in the 8th Ann. Rep. of the Reg.-Gen. for Scotland [abstracts 1862]:

All that the best sanitary arrangements can do is to improve the general health of the people; and doing this will render them less liable to be attacked by all diseases, and less liable to fall victims under the diseases when attacked. But no amount of sanitary precaution will prevent epidemics attacking masses of the people should epidemic seasons come round, or should an epidemic wave, like that of cholera, reach our island. All facts yet ascertained, however, prove that persons suffer from attacks of epidemic diseases *just in proportion to their sanitary condition*; but it has been quite overlooked that they are equally afflicted by every disease, so that in this respect the epidemics follow the same rule as ordinary diseases. It is this fact, hitherto overlooked, which explains why in unhealthy seasons the high mort. is not specially caused by an increase of the epidemic diseases, but by an increased prevalence and fatality of all the ordinary diseases which afflict humanity. For instance, during the very unwholesome season of 1862, the injurious but known atmospheric agencies which increased the mort. did not increase the epidemic diseases at all, if we compare that year with the very healthy year 1856, but expended their destructive energies on the ordinary diseases. If we compare 1862 with 1860, on the other hand, we shall find that their pernicious action was equally felt by the epidemic as by the ordinary diseases; for while, as compared with that year, the epidemic diseases furnished an increase of 1572 deaths, the ordinary diseases furnished an increase of 3282 deaths.

Sanitary measures, therefore, are far more required to save people from the ravages of the ordinary diseases than from epidemics. Epidemics only occur at intervals; but the ordinary diseases are silently cutting off our pop. day by day. All such measures, therefore, should be actively carried out, not with the utopian idea of preventing the people from suffering from epidemics, but to lessen the general death-rate from all diseases, including epidemics. Sanitary measures effect this by improving the general health through removing those causes of the vitiation of the purity of the air, which is the most fruitful source of bad health. But great care would be required to be taken, that, in adding to the conveniences of life among the lower classes, we do not introduce sources of vitiation of the air greater and more dangerous than those we are endeavouring to remove.

In 1862 Dr. J. G. Fleming, M.D., medical adviser of the *Scottish Amicable L.*, pub., *Medical Statistics of L. Assu.: being an Inquiry into the Causes of Death among the Members of the Scottish Amicable L. Assu. So. from 1826 to 1860; and a comparative analysis of the diseases which have proved fatal among the assured in several societies, and among the general pop. of England; with remarks on the medical selection of lives for assu.* This work contains many obs. of practical value regarding diseases; but the writer's views will be noted under the heads of those diseases to which he makes more especial reference.

In 1863 Dr. Scoresby-Jackson laid before the Royal So. of Edin. a paper, *On the Influence of the Weather upon Diseases and Mort.* The author says:

My object is to examine the relations which exist between the weather and the health of a community as closely as I find it practicable to do so; and in pursuing this inquiry, my desire is to divest myself of all foregone theory, and to make the facts which I have collected speak for themselves.

We are not to assume that because certain conditions of weather, as indicated by meteorological instruments, in this country are opposed to recovery from certain diseases, that, *therefore*, patients so suffering are not to be sent into any country where meteorological instruments afford exactly, or even nearly parallel readings. In other words, in estimating the value of a foreign climate, or the different climates of our own country, we are not to depend so much upon a comparison of the meteorological data of the several places as upon the relations subsisting between the meteorological data and the prevalent diseases and death-rate of one and the same locality. Each spot of ground aspiring to the reputation of a health resort must first have had this problem solved for it, and then we may with greater safety institute a general comparison.

To argue that because a given condition of temperature, atmospheric pressure, and humidity in Scotland, is accompanied by a certain ratio of mort., therefore, meteorological data being equal, the same death-rate will be observable at Torquay or Madeira, would be most fallacious: *all other things* being equal, the death-rate would also coincide; but it requires much more than mere meteorological analogy to establish such a parallelism.

The geology of Scotland is one of the most striking features of the country; and that the structure of the land, together with the physical and chemical characteristics of the soil upon its surface, exercises a powerful influence upon the distribution of disease I do not for a moment doubt; so much indeed am I impressed with the belief of this, that I have been for some time collecting materials, with a view of showing, more distinctly than has hitherto been done, the relations which these circumstances bear to each other.

It is a very difficult matter to obtain accurate statistics of the prevalence of disease over a large community. After collecting a mass of statistics of disease from several dispensaries and hospitals, with a view of comparing the rate of *morbidity* with the rate of mort., as given in this paper, I was obliged, after much labour, to abandon the morbidity statistics as next to worthless. Therefore this paper points to disease only through mort. [SICKNESS.]

After passing through an elaborate inquiry, we meet with the following:

That the weather has to do with fluctuations in the death-rate from zymotic diseases no one will doubt; but the manner of its operation it is difficult to explain. In countries where marshes form an ample source of some of these diseases, the effects of temperature and humidity are obvious enough; but in this country, in which the germs of such diseases spring from unrecognized sources, the influence of the weather in bringing them hither, developing and propagating them, is not so plain. I make no comments upon the foregoing facts; it was not to be expected that any very striking results would be deducible from a mere comparison of the meteorological data with the death-rate from a class of diseases comprehending so great a variety. In the T. I have given the death-rates from three diseases of the zymotic class—viz. typhus, scarlatina, and diarrhoea; and it would have been interesting to have shown the effects of meteorological phenomena upon each of these: but that must be left for another opportunity.

There are two periods in a lifetime at which the influence of the weather, equally with that of other external causes, is felt most keenly—infancy and old age. . . . [WEATHER, INFLUENCE OF.]

It occurs to us that the author of this paper has placed heavily under contribution the investigations of Dr. Stark, M.D., as given in the Reports of the Reg.-Gen. for Scotland. Is there any sufficient acknowledgment?

In the 6th Ann. Report of the medical officer of the Privy Council, pub. 1864, Dr. Simon, under the heading "Distribution of Disease in England, and the circumstances by which it is regulated," reports upon the progress made during the preceding 5 years, in which there had been in operation "a systematic and continuous inquiry" into those matters. We must be content with a mere outline glance, in the words of the reporter:

My Report of 1858, "on the preventability of certain kinds of premature death," has served as a programme to the inquiry; and from 1858 till now the results, as far as obtained, have year by year been given in my successive ann. reports. Sometimes the inquiry has started from known local excesses of a particular disease; and by proceedings in this form the ætiology of several of our most important diseases has been investigated;—as, for instance, of diarrhoea and diphtheria in 1859—of phthisis and other lung diseases in 1860 and 1861—of diseases causing infantile mort. in 1862—and of typhoid fever in all the years, but especially in 1860. Sometimes, on the other hand, the form of the proceeding has for convenience been that of investigating the operations of a known morbid influence;—as, for instance, in 1862, in the inquiries into the effects of working with arsenical green, and into the effects of working with phosphorus. During the year 1863 further proceedings of both sorts were ordered by the Privy Council, and considerable additions were in consequence made to the stock of information which their lordships had previously collected. Inquiry of a third sort—inquiry, namely, as to the sufficiency with which the primary wants of the body are satisfied among the poorest classes of the pop.—has been begun, and in one very important particular (the particular of *food*) somewhat extensively conducted. I append *in extenso* the reports of the several gentlemen who have acted as inspectors for those various inquiries during the year 1863. [FOOD.]

We shall from time to time recur to these Reports.

Dr. Stark, M.D., in the 10th Detailed Rep. of Reg.-Gen. of Scotland, passed in review the regis. "causes of death" in that country during the 10 years 1855-64. He says thereon:

To enable those who are engaged in sanitary inquiries to arrive at proper conclusions relative to the prevalence and fatality of diseases in the town, rural, and insular districts of Scotland, the T. of deaths for the 10 years have been so drawn up as to exhibit the number and proportion of deaths from each disease in the insular, the mainland-rural, and town districts of Scotland. When properly studied, these T. reveal several most important and fundamental truths which writers on sanitary subjects seem to have overlooked to a very great extent, and which are only now alluded to in the hope that sanitary inquirers may pursue the subject for themselves.

1. These T. prove . . . that the general mort. in the towns is one-third greater than in the rural districts.

2. These T. prove that every disease which prevails in the towns equally prevails in the rural districts. (*The corollary from this is, that sanitary measures, even though so successful as to diminish the mort. of any town or place by one-third, would not extirpate any one disease.*)

3. These T. reveal that the increased mort. in the towns is not caused by an increased prevalence and mort. of any one disease or class of diseases, but by a nearly uniform increased mort. of all diseases and all classes of diseases. (*The corollary from this is, that it is the general health which is impaired by a residence in towns; and that this lowered standard of health makes the town inhabitants more liable to take and fall victims to all diseases.*)

4. These T. prove that the supposed great epidemic of towns, viz. continued fever, instead of being, as is commonly supposed, more prevalent in towns as compared with the other diseases, is not so prevalent as in the rural districts, seeing that the deaths from fever in the towns only constituted 4'66 p.c. of the specified causes of death, but were 4'967 p.c. of the deaths in the rural districts. (*The corollary from this is, that it is not over-crowding, filthiness, dirt, and want of drainage which is the cause of fever, but only that these impair the general health, and render the person more liable to fever, should the unknown atmospheric or telluric agencies which give rise to the disease cause fever to attack the people.*)

5. These T. prove that the class of diseases which have a purely atmospheric origin, and seem to be completely under the influence of temperature, viz. the inflammatory affections of the respiratory organs, in proportion to the other diseases, are more prevalent and fatal in the towns than in the rural districts, seeing that in the towns they constituted 15'051 p.c. of the deaths, but only 11'258 p.c. of the deaths in the rural districts. (*The corollary from this striking fact confirms all the conclusions above arrived at, viz. that the health of the inhabitants of the towns being more impaired than those residing in the country, they are more easily, and are proportionably much more injuriously, affected by atmospheric vicissitudes, so that they perish in much higher proportions from those diseases which are clearly traceable to atmospheric influences.*)

The same writer lays down the following principle:

To calculate accurately the proportion of deaths from each disease to the pop., each of the above-mentioned pop. [the actual populations] must be reduced by the proportion applicable to the causes of death which were not specified. Thus, the mean ann. number of deaths in all Scotland whose causes were not specified amounted to 3703, and thus constituted 5'6853 p.c. of the total ann. deaths. The mean pop. of Scotland must therefore be reduced by 5'6853 p.c., that is, by 173,309 persons, in order to make the pop. correspond with the specified causes of death. This therefore reduces the pop. of Scotland, as applicable to the specified causes of death, to 2,875,074 persons; and that number, used as the divisor, gives the true proportion of deaths from each disease in the pop. A more inaccurate method is to apportion to each disease its proportion of the unascertained causes of death, and use the total pop. as the divisor. But this leads to inaccurate results.

The Reg.-Gen.'s returns distinguish more than 100 several causes of death, but except in great cholera epidemics, more than half the deaths of every year in Eng. are from one or other of ten causes. In the year 1864, 53,046 persons died from phthisis, 38,969 from bronchitis, 24,470 from pneumonia, 21,311 from heart disease. There were 29,498 deaths from old age, and, chiefly at the opposite extreme of life, 26,382 from convulsions, and 29,634 from atrophy and debility. 29,700 persons died from scarlatina, 20,106 from typhus, and 16,432 from diarrhoea. Year by year these prove the ten great enemies of life. Half a million of persons die in Eng. in a year, and this is the manner of the exit of half the number. Dealing with the diseases and causes of death in classes, we find that in the 15 years 1850-64 the average ann. number of deaths to each million of the people living was 22,200'2.

From 1. Zymotic diseases	5064'0	} Deaths to 1,000,000 living.
2. Constitutional diseases.....	4368'0	
3. Local diseases	814'8	
4. Developmental diseases	3595'1	
5. Violent deaths	752'5	
6. Sudden deaths	177'2	
7. Causes not specified	214'8	

At the British Asso. Meeting in 1865, Dr. Moffat, M.D., read a paper: *On Phosphorescence, Storms, and Disease*. We shall speak of this paper under STORMS.

At the Social Science Congress, 1865, Dr. Edwin Lankester, M.D., delivered an address upon health, in which will be found much of a most interesting and instructive character. We take the following passage as appropriate to our present purpose:

Amongst our sanitary reformers there are two great schools, one of which maintains that the great mass of zymotic diseases are produced by special poisons, and are called contagionists; whilst another school do not believe in the existence of special poisons, but believe that certain general conditions of sanitary neglect and dirt are alone necessary to produce the group of zymotic diseases, and they are called anti-contagionists. Now, I believe that the extreme views of either school are wrong; and I have a very deep impression that for sanitary measures to be directed by one or other party, in the present state of our knowledge of the diseases, would be to plunge us into evils as great as those of quiet submission to their unresisted influence. For an officer of health to suppose that cleansing and draining and washing would arrest the progress of smallpox in a house full of unvaccinated persons, would be an utter absurdity; whilst the placing a cordon around an ill-ventilated and badly warmed house, expecting to keep off bronchitis and pneumonia, whilst the temperature is 12° below freezing point, would be equally absurd. But whilst all are agreed that smallpox is a contagious disease, and that bronchitis is not, there is a large class of diseases on which sanitary authorities differ as to their nature, and the best modes of arresting their development.

Dr. Stark, in the 13th Ann. Rep. of Reg. Gen. for Scotland [abstracts for 1867], gives a T. showing the 18 most fatal diseases in Scotland, and the like number of the most fatal in England, arranged in the order of their fatality, and giving the proportions in which they prove fatal to the pop.; remarking thereon:

From that T. it will be seen that the different diseases have very different death-rates in the two countries during the same year, though they are inhabited by the same races, and are usually considered to be subject to very nearly the same meteorological influences.

Here is the table.

Table showing the 18 most fatal diseases in Scotland and in England in 1867, arranged in the order and proportion of their fatality.

SCOTLAND. Diseases.	Proportion of Deaths to 100,000 living.	ENGLAND. Diseases.	Proportion of Deaths to 100,000 living.
Phthisis	272	Phthisis	259
Bronchitis.....	224	Debility, Atrophy, } Premature Birth.....	194
Old age	213	Bronchitis.....	190
Atrophy, Debility, } Premature Birth.....	128	Old Age.....	135
Heart, etc., Diseases	112	Convulsions	123
Fever (Typhus, etc.)	111	Heart, etc., Diseases	107
Scarlet Fever	74	Pneumonia	99
Pneumonia	68	Diarrhoea	93
Hydrocephalus.....	61	Fever (Typhus, etc.)	79
Hooping Cough	57	Scarlet Fever	58
Paralysis	55	Hooping-Cough	55
Diarrhoea	49	Paralysis	50
Measles	44	Apoplexy	49
Cancer	42	Cancer	40
Apoplexy	38	All Liver Diseases	39
All Liver Diseases	33	Dropsy	33
Teething	32	Hydrocephalus.....	33
Tabes Mesenterica	31	Tabes Mesenterica	32

In the same vol. is included another T., "drawn up with the view of showing the influence of the weather, but especially of the mean monthly temperature on different diseases and classes of diseases in the 8 principal towns of Scotland." Dr. Stark says:

This T. is worthy of attentive study, because it not only tends to confirm all that has been advanced with regard to the influence of temperature on the general mort, but also proves that the same agent has an equally powerful influence on each disease and class of diseases. Nay, more, it proves that those diseases which we call epidemics are subject to the very same law of temperature in Scotland, as are those diseases which we style sporadic, such as bronchitis, pneumonia, enteritis, etc. Thus the Zymotic (epidemic and contagious) class of diseases, which caused in the 8 towns 308 deaths in June, caused 480 deaths in Dec., and 518 deaths in Jan., the coldest month; scarlatina, which caused only 50 deaths in July, caused 159 in Dec.; typhus, which caused 90 deaths in June, caused 140 deaths in Jan.; diseases of the respiratory organs, which caused 192 deaths in Aug., caused 538 deaths in Dec. and 712 in Jan.; brain diseases, which caused 157 deaths in Aug., caused 235 deaths in Dec.; and old age, which caused 89 deaths in Aug., caused 118 in Dec. and 177 in Jan., the coldest month.

Here is the T.

Table showing the connexion between atmospheric phenomena, especially mean monthly temperature, and the deaths from certain diseases and classes of diseases, in the 8 principal towns of Scotland, during each month of the year 1867.

1867	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mean Temperature	32°·9	42°·1	36°·8	46°·0	47°·4	55°·8	55°·6	58°·6	53°·9	47°·0	42°·2	36°·7
Highest Temperature	49°·6	54°·3	53°·1	59°·7	67°·1	74°·2	74°·5	75°·2	65°·6	61°·8	54°·0	54°·3
Lowest Temperature	16°·6	27°·5	26°·4	33°·4	33°·3	41°·7	42°·4	46°·4	39°·2	31°·2	29°·8	26°·2
Rainfall in inches	4·74	30·5	2·16	4·48	3·31	1·96	4·95	3·42	2·99	3·85	1·00	2·78
Total Deaths	2822	2198	2437	2347	2411	1989	2154	1855	1901	1969	2049	2379
Daily Deaths	91	78	78	78	78	66	69	60	63	63	68	77
Zymotic Diseases	518	425	453	452	499	398	479	410	476	492	457	480
Smallpox	13	10	8	7	4	3	2	6	0	3	2	4
Measles	78	63	80	88	109	83	99	51	33	23	18	26
Scarlatina and Diphtheria	90	73	76	58	72	56	50	51	90	136	129	159
Whooping Cough	75	68	88	76	72	82	97	70	56	73	69	72
Croup	31	18	10	29	29	23	24	23	40	36	37	41
Typhus	140	109	119	116	136	90	104	64	95	115	131	119
Diarrhoea	31	34	39	33	37	32	67	93	128	62	30	18
Cholera	9	3	0	0	2	2	2	11	8	4	2	4
Consumption	321	281	355	327	332	301	292	260	229	224	208	249
Diseases Respiratory Org.	712	463	479	434	423	317	259	192	203	329	460	538
Heart, etc., Diseases	153	96	126	82	100	106	108	70	84	83	72	101
Brain, etc., Diseases	203	183	208	194	176	169	171	157	159	151	164	235
Age.....	177	122	125	105	116	86	108	89	80	82	86	118

In a paper read before the Social Science Congress, 1867, by Dr. Arthur Ransome, M.B. Cantab., *In what respects do the Regis. Systems of England, Ireland, and Scotland, need Improvement, and is it desirable that they should be assimilated?* there occur the following passages :

It will prob. be a long time before a thoroughly trustworthy measure of the relative health of different portions of the pop. can be obtained. In add. to the information now secured, it will be necessary to record in the regis. of death the duration of each person's residence in the respective localities, and then the health-rate of each place must be deduced by long and careful investigation of these records.

When we turn to the second branch of the inquiry conducted by the Reg.-Gen., namely, the investigation into the causes of death, we obtain no more satisfactory results. The causes of death, or rather the names of the diseases which are supposed to have immediately preceded the deaths, recorded in the Registrar's returns, are grouped under the heads of a carefully framed classification of diseases. I have no wish at the present to criticize this arrangement; the nosological T. have been greatly improved since they were first brought out, and they are now apparently constructed with a view of obtaining some idea of the true causes of death, and various injurious conditions which have led to the diseases finally entered on the certificates of death.

The defects in these records are to be found, not in the arrangement of the statistical T., but upon the data upon which these are founded. However perfect the grouping of diseases in separate classes and orders, the T. will be of little value if the diseases which they include have been imperfectly obs. or wrongly entered. Unfortunately the evidence given by these statistics cannot be relied on for several reasons.

These reasons have been given in our art. DEATH, CAUSES OF, under this date. Finally,

Much might prob. be done to improve these records of the causes of death, but I believe that before long it will be found necessary to collect returns, not only of deaths, but also of some diseases as they arise. In this way alone can we hope to learn the exact place and time at which these diseases have arisen, and trace the fluctuations in their prevalence. *If a regular and systematic regis. of disease, such as that proposed by the Brit. Medical Assn., were to be combined with the records of deaths, we might at least hope to add greatly to our now very limited knowledge of epidemic disease.*

At present also the return of deaths only gives no measure of the extent to which a disease has spread; it only shows its intensity. Even partial returns of new cases of an epidemic disease at the time of their occurrence would be most useful as a warning to the public, and would indicate the degree of its prevalence. [DISEASES, REGIS. OF.]

The Reg.-Gen. in his 31st Rep. [abstracts, 1868], says :

The hist. of health and disease has now been recorded in Eng. for 31 years, and the rates of mort. experienced during this lengthened period have been successively reviewed year by year, as have also the fluctuations in the causes of death. It is to be regretted that much of our knowledge of the laws of sickness and health has only been acquired at the price of dearly bought experience. One advantage, however, that has accrued from noting the rise and fall of epidemic diseases, together with the circumstances which produce and foster them, is that no great outbreak of disease has been allowed to pass away without giving a new impulse to sanitary measures.

The grand end that has ever been kept in view in digesting these facts has been to discover the relation which certain results bear to causes under control : for this, after all, is the great lesson to be derived from such statistics.

The returns of recent years afford proofs that some diseases have been brought under control ; and it is encouraging to reflect that any sanitary measures adopted to check the ravages of any one epidemic are operating at the same time more or less towards the reduction of the virulence of others.

Dr. Farr, in the Appendix of the same Rep., supplements the preceding obs. as follows :

In comparing the fatal diseases of successive years, it is necessary to bear in mind that the knowledge of medical observers is undergoing changes every year, and is becoming more precise as pathology advances. Thus, heart diseases are now recognized, affections of the urinary organs, and cancers, which some years ago would have been overlooked, or have been confounded with other maladies. *In such cases it is not safe to infer that these diseases which afflict mankind are really increasing, because the numbers which medical men distinguish are augmenting.* The physician will know how to interpret the ambiguous facts, and to turn them to account.

Again :

It is the duty of physicians, in recording facts respecting disease and death, to employ the same care as astronomers and meteorologists bestow on the obs. of physical phenomena ; and if this is done, the obs. will admit of the same kind of generalizations. And it must be evident, that as far as progress is concerned, these direct obs. on the death, and life, and reproduction of the human race, are of fundamental importance. The processes are complicated ; life is enshrouded by an almost divine mystery ; death is a kind of darkness ; but it is a darkness which science can illumine.

In the 10th Rep. of the medical officer of the Privy Council, pub. 1868, a most important branch of investigation is taken up in systematic form, viz. : "As to the Local Distribution of Disease, and the circumstances by which it is regulated." We can do no more than quote the introductory para. For the important details, the Rep. itself must be consulted.

I have to recall that in my last Ann. Rep. a section to which I attached particular importance related to changes produced in the public health in certain towns where of late years improvements in drainage and water supply had been made. The largest result of the investigation then reported on (an investigation relating to 25 towns, with an aggregate pop. of 600,000 inhabitants) was to show very strikingly the exemption which local pop. obtain from cholera, typhoid fever, and other endemic bowel affections, *in proportion as the local air and soil and water are kept free from excremental pollution* : a result so confirmatory of much other evidence previously collected in regard to the same ætiological question, that henceforth apparently not even the most unwilling witness can deny the relation of cause and effect. But the inquiry had some other results, of different degrees of value. And among such results, one which stood in particular relief concerned the local distribution of pulmonary phthisis. It was evident, namely, that in some of the towns which had been improved, the mort. from phthisis had notably diminished. And when detailed examination was made of the cases which gave that indication, in contrast with the different class where phthisis had not been lessened in amount, it appeared that the diminution or non-diminution of phthisis depended on whether the sanitary improvements of the place had, or had not, included any considerable drying of the soil. In cases where this condition had been fulfilled, the reduction of phthisis occurred but too uniformly, and also in too great amount to be regarded as of accidental coincidence. . . .

In this same vol. was contained a Rep. by Dr. Thudichum, "On Researches intended to promote an improved Chemical Identification of Diseases." The subject is far too technical for our pages ; but we record the fact as having historical significance. It is a practical step so essentially in the right direction that we may draw the line between the *past* and the *future*—so far as our pathological knowledge of diseases goes—at this point. Here is one declaration of principle : "The processes and products of disease obey the same general natural laws as all other processes and matters, and in add. the laws of their special causation." The investigation is continued in subsequent Reports.

Dr. Stark, in the 14th Detailed Rep. of Scottish Reg.-Gen. [abstracts, 1868], says :

The zymotic or epidemic and contagious class of diseases cut off 15,170 persons in Scotland during the year 1868, of whom 7439 were males, and 7731 females. These diseases thus constituted 22·82 p.c. of the deaths, or cut off at the rate of 499 out of every 100,000 of the pop. As the deaths from these diseases on a 10 years' average constituted 24·26 p.c. of the deaths, the year 1868 must be considered as a non-epidemic year, even though its epidemic deaths were 14 p.c. above those of the previous year. The fact that in one year the epidemic deaths may show an increase of 14·4 p.c. without affecting the gen. mort. is well worthy attention, especially when taken in connexion with the equally startling fact which occurred in the year 1866, when the gen. mort. of the year rose above that of the previous year, though its epidemic mort. decreased to the extent of 8·3 p.c. These two facts, the exact converse of one another,—occurring, too, in a period of 3 years, during one of which an epidemic mort. increased 14·4 p.c., and yet did not increase the general mort. ; while during the other the epidemic mort. decreased to the extent of 8·3 p.c., and yet the general mort. increased above that of the previous year,—*of themselves prove how ignorant we are yet as to the causes of the prevalence of epidemics, or to the causes of the increase or decrease of the general mort. from all diseases.*

He then turns to another aspect of the subject :

In studying the deaths from any particular class of diseases, one of the most important points of inquiry is the age at which the chief mort. occurs. This point seems to have been greatly overlooked ; and with the view of throwing some light on the subject in reference to the deaths from the diseases which are classified under the title of Zymotics, a couple of T. have been drawn up, to which special attention is desired to be directed. To obtain data for comparison, however, it is necessary to know the proportions at which persons at different ages die from all the diseases which afflict our race ; and then we are able with advantage to compare these with the proportions at each age in which the zymotic diseases proved fatal. [DISEASES, INFLUENCE OF AGE UPON.]

The Tables here referred to will be given under ZYMOTIC DISEASES ; but we may for present purposes glance briefly at their results.

The first Table shows that in 1868 (which was a year of average mort. in all respects) 38 p.c. of the total deaths which occurred were under 5 years of age ; 4·9 p.c. between 5 and 10 ; 2·7 p.c. between 10 and 15 ; 29·7 p.c. were between 15 and 60 years ; while 27·4 p.c. were 60 years and upwards. Thus 45·6 p.c. died under 15. These are the deaths from *all causes*. If we exclude zymotic, the proportion is only 37·1 p.c. under 15. Then taking the deaths from zymotic diseases alone, from Table No. 2, these showed very different proportions at the several ages, viz. 60·5 p.c. under 5 ; 11·7 p.c. between 5 and 10 ; 3·7 p.c. between 10 and 15 ; while only 16·9 p.c. of the deaths were from 15 to 60 years ; and 7·2 p.c. above 60. Or in other words no less than 75·9 p.c. of the deaths from zymotic diseases occurred under 15 years of age.

Dr. Stark, in the 15th Detailed Rep. of Scottish Reg.-Gen. [abstracts 1869], reverts to the T. of "most fatal diseases in Eng. and Scot." The T. is now extended to 19 diseases or causes of death.

That T., like those in previous rep., shows that during the same year the same diseases have very different death-rates in the two countries, though inhabited by the same general races of men, and supposed to be under like meteorological conditions. *But that T., when narrowly examined, reflects through its*

deaths the greatly different meteorological conditions between Scot. and Eng. Thus, the sudden changes from mild weather to extreme cold, and *vice versa*, are much more common in Scot. than in Eng.; and the northerly, north-east, and north-west winds blow with a keenness and force quite unfelt in Eng. It is those sudden changes and the prevalence of these keen winds which induce bronchitis, pneumonia, and other affections of the respiratory organs. Accordingly this T. shows that while in Eng. in every 100,000 persons only 318 died during the year from bronchitis and pneumonia, 333 died from the same diseases in Scot. Diarrhoea, on the other hand, is a disease whose greatest mort. occurs during the warmer months of the year, and whose mort. is greatly regulated by the degree of temperature during these months. Eng. had a much higher autumnal temperature than Scot., and the consequence is shown in the T.; for while in every 100,000 persons Scot. only lost 50 persons by diarrhoea, Eng. lost 91.

There is no need to reproduce the T. here.

In 1869 Mr. Alfred Haviland pub. *Abstracts of two papers on the Geography of Disease*. See DISEASES, GEOGRAPHICAL DISTRIBUTION OF.

At the Brit. Asso. Meeting in 1870, Mr. Haviland read a paper: *A proposed re-arrangement of the Regis. Districts of E. and W., for the purpose of facilitating Scientific Inquiry*. The author advocated that "a national system" be substituted for our present one, and that our country be divided into districts regulated by its water-shed and river-system. "We should then have in every district a focus of scientific inquiry, whether it be as to rainfall, temperature, prevalence or strength of wind, . . . or for the purpose of regis. the occupations, the diseases, or the deaths of the people." Such a system prevails in France, but the learned author admitted that as there carried out it was by no means perfect.

At the same Congress Mr. W. Hope read a paper: *On the Antiseptic Treatment of Contagion as illustrative of the Germ Theory of Disease*. [DISEASE, GERM THEORY OF.]

In 1870 also Mr. Alfred Haviland delivered a lecture at St. Thomas's Hospital on *The Geographical Distribution of Diseases in E. and W.* This we shall speak of under DISEASES, GEOGRAPHICAL DISTRIBUTION OF.

The Rep. of the Census Commissioners for Scotland, 1871, deals very fully with the mort. of Scotland during the preceding 10 years, and also with the geographical distribution of disease, and the causes affecting the mort. [DISEASES, GEOGRAPHICAL DISTRIBUTION OF.] [SCOTLAND.]

In 1872 Mr. James Meikle, Act., Edin., pub. *Obs. on the Rate of Mort. of Assured Lives as experienced by Ten Assu. Cos. in Scotland, from 1815 to 1863*. This had been read as a paper before the Royal So. of Edin. in 1870, and constitutes an enlarged review of certain considerations arising out of the investigations involved in the preparation of the Rep. on the Mort. Experience of the same Scottish Ins. Asso. pub. in 1869. [EXPERIENCE T. No. 2.] [SCOTTISH MORT. EXPERIENCE.] Under the section, "Intensity of the Causes of Death at each Age," we have a series of most instructive T., with which, however, we can only deal in the abstract. Mr. Meikle tells us how he proceeded in the preparation of these T. "The total number of deaths, 11,947, were in the first place classified according to the several causes of death; and the prob. at each age of dying in one year from each of these causes was thereafter obtained." The classification of the "orders" of the causes of death is that used by the Scottish Registrar-General, and is as follows:

- | | |
|---------------------------------|---------------------------|
| I. Zymotic class. | X. Organs of locomotion. |
| II. Diseases of uncertain seat. | XI. Skin, etc. |
| III. Tubercular class. | XII. Malformation. |
| IV. Brain and nervous system. | XIII. Premature debility. |
| V. Organs of circulation. | XIV. Atrophy. |
| VI. Respiratory organs. | XV. Age. |
| VII. Organs of digestion. | XVI. Sudden deaths. |
| VIII. Urinary organs. | XVII. Violent deaths. |
| IX. Organs of generation. | |

The "proportion of deaths from various causes to each 1000 total deaths" was found to be as follows:

Ages.	Causes of Death.											Total Deaths.
	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.-XVI.	XVII.	XVIII.	
10-19	313	84	261	44	0	60	152	13	0	47	26	1000
20-29	233	16	322	81	34	76	73	13	17	84	51	1000
30-39	180	26	236	161	52	88	99	23	23	80	32	1000
40-49	149	52	130	194	89	118	132	31	20	58	27	1000
50-59	129	72	66	209	111	130	141	44	26	40	32	1000
60-69	105	70	20	231	156	157	129	42	42	16	32	1000
70-79	83	58	7	225	106	180	84	51	164	10	32	1000
80-89	43	16	5	74	55	228	50	18	416	63	32	1000

Then follows a T. showing the "prob. of dying in one year from each of the classified orders of disease" for each year from 20 to 83. We must be content with a quinquennial abstract.

Prob. of dying in one year from each of the classified orders of disease (roughly adjusted).

Ages.	Causes of Death—or Classified Orders of Disease.											Tl. prob. of dying in 1 year Adjust'd results.
	I. adjust'd	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.—XVI.	XVII.	XVIII.	
20	'001559	...	'002121	...	...	'000290	'000445	...	...	'000308	...	'006310
25	'001704	'000149	'002460	'000663	'000214	'000606	'000584	'000073	...	'000574	'000318	'007270
30	'001682	'000177	'002328	'001044	'000307	'000590	'000744	'000122	'000152	'000742	'000209	'008172
35	'001627	'000264	'002216	'001489	'000464	'000862	'000868	'000207	'000211	'000699	'000278	'009188
40	'001656	'000412	'001819	'001930	'000749	'001130	'001139	'000283	'000250	'000797	'000272	'010437
45	'001821	'000589	'001520	'002438	'001078	'001394	'001697	'000355	'000245	'000753	'000323	'012262
50	'002124	'000929	'001499	'003173	'001704	'001850	'002175	'000599	'000323	'000770	'000503	'015122
55	'002581	'001043	'001319	'004255	'002257	'002723	'002834	'000884	'000514	'000839	'000598	'019019
60	'003268	'001942	'001170	'006376	'003870	'004608	'004604	'000966	'000873	'000786	'000838	'028028
65	'001328	'003361	'000880	'000524	'006441	'006386	'005552	'001807	'001620	'000674	'001360	'041281
70	'005892	'003816	'000567	'014585	'009201	'009406	'006761	'003247	'005394	'000405	'002079	'062140
75	'007878	'005462	'000697	'021843	'010711	'016652	'008520	'005324	'014400	'001246	'003274	'093748
80	'009621	'004350	'001727	'020160	'010143	'027273	'011079	'007371	'048430	'002474	'005046	'145474

It is pointed out that "these T., applied to any other class of persons exposed to the risk of mort., would point out whether the lives had been exposed to causes of death different from those which had been ascertained to prevail among assured lives." It is further stated, "The materials have been prepared for a similar series of T. derived from the number of deaths in Scotland during the 10 years 1855-64, with the view to a more extensive comparison between the intensities of the several causes of death of 'assured lives' and of the pop." An abridged comparison is then given of the deaths of 'assured males,' at quinquennial ages, to the Male pop., and of 'assured females' to the Female pop., in each 1000 total deaths.

It appears from such comparisons that assured lives—males and females being nearly similar—die in larger proportions than the pop. from—I. Zymotic diseases, IV. D. of the brain, V. D. of the blood vessels after age 45, VI. D. of the lungs after age 70, VII. D. of the stomach and liver, VIII. D. of the kidneys, IX. D. of the organs of generation (females); and that the pop. die in larger proportions than assured lives from—II. D. of uncertain seat (cancer, gout, etc.), III. Tubercular diseases, V. D. of the blood vessels up to age 45, VI. D. of the lungs up to age 70, XIV. and XV. Atrophy and old age, XVI. and XVII. Accidents and violent deaths. [DISEASES, RELATIVE FATALITY OF.]

Prof. Tyndall put forward in June, 1872, a very remarkable proposition in view of testing the "action of 'Providence' in physical affairs," of which he considers it desirable to have "clearer notions than we now possess." The case is stated thus:

We possess unquestionable data in reference to certain well-known maladies, particularly fevers of the eruptive type; such as smallpox, scarlet fever, typhoid fever, etc. Of some local acute disorders, such as pneumonia, we know what is termed the natural history pretty well, their duration, and probable termination at different ages, etc. The mort. which follows the great surgical operations at different ages is a matter known and determined; for example, after lithotomy and lithotomy, amputation of the limbs, hernia, etc. The very large record of past cases which exist, and the very wide and careful researches which have been made, have had for their result the production of known numerical mort. rates p.c., and applicable to future patients of different ages and conditions. Indeed, the whole system of life assu. is, all the world over, based solely on the accuracy of such data, and on the certainty with which they will reproduce themselves. Whatever these numerical results have been—whether the mort. rates deduced belong to healthy lives or to diseased lives—all have been necessarily made, subject to the conditions of human life as it now exists, and including, among a thousand other influences, that most important one of "general prayer" by the whole Christian Church for "all men," as it has been already described, and influencing, as it does, whatever may be its extent, the sick, the suffering, those exposed to murder and sudden death, etc., throughout the whole world. Subject to this influence is every drug prescribed. Influenced by this is the result of every surgical operation.

He then proposes this test:

Now, for the purpose of our inquiry, I do not propose to ask that one single child of man should be deprived of his participation in all that belongs to him of this vast influence. But I ask that one single ward or hospital, under the care of first-rate physicians and surgeons, containing certain numbers of patients afflicted with those diseases which have been best studied, and of which the mort. rates are best known, whether the diseases are those which are treated by medical or by surgical remedies, should be, during a period of not less, say, than three or five years, made the object of special prayer by the whole body of the faithful, and that, at the end of that time, the mort. rates should be compared with the past rates, and also with that of other leading hospitals, similarly well managed, during the same period. Granting that time is given, and numbers are sufficiently large, so as to insure a minimum of error from accidental disturbing causes, the experiment will be exhaustive and complete.

Finally, he says:

I might have proposed to treat two sides of the same hospital, managed by the same men; one side to be the object of special prayer, the other to be exempted from all prayer. It would have been the most rigidly logical and philosophical method. But I shrink from depriving any from—I had almost said—his natural inheritance in the prayers of Christendom. Practically, too, it would have been impossible; the unprayed for ward would have attracted the prayers of believers as surely as the lofty tower attracts the electric fluid. The experiment would be frustrated. But the opposite character of my proposal will commend it to those who are naturally the most interested in its success; those, namely, who conscientiously and devoutly believe in the efficiency against disease and death of special prayer. I open a field for the exercise of their devotion. I offer an occasion of demonstrating to the faithless an imperishable record of the real power of prayer.

The proposition, remarkable as it is, appears to have been made in philosophic earnestness and good faith.

In 1872 Dr. James Ross, M.D., read before the Brit. Asso. Meeting a paper: *On the Graft Theory of Disease*. [DISEASE, GRAFT THEORY OF.]

Dr. Acland, F.R.S., D.C.L., in his address before the Social Science Congress, 1872, on *Health*, took an enlarged view of the whole subject of health and disease. We shall review his paper more particularly under HEALTH. [DEATH-RATE.]

At the same Congress (1872) Mr. Thomas Baker, Barrister-at-Law, and author of the "Laws of Public Health, Sanitary, Medical, Protective," read a paper: *The Prevention of Disease*. The subject will be considered under DISEASES, PREVENTION OF.

In the Address of President F. S. P. Barnard, of Columbia College, delivered before the American Health Association in 1873, we find some of the newest scientific truths on the subject of disease treated with commendable brevity and clearness. The following is but an abstract:

It is beginning to be recognized as a fundamental truth, that all kinds of diseases have some definite cause, that none of them are fortuitous and accidental, and that all the laws which govern them are as fixed and definite as those of mathematics. The germ theory, which attributes the cause of many diseases to minute eggs of animalcule or spores of plants floating about in the atmosphere, is no new idea, but was propounded as much as two hundred years ago to account for the infectious propagation of the plague. Although at that time it was regarded as a mere hypothesis, the thousands of experiments made since have substantially demonstrated its truth. It is not pretended that all diseases can be traced to this theory. [DISEASE, GERM THEORY OF.] There are many occasioned by over eating and drinking, or the result of hereditary transmission, which are totally independent of any such causes as we are investigating, as also the results of poisons and diseases of hereditary transmission. But what is now substantially settled is this, that persons suffering from certain diseases have experienced an introduction in their systems of microscopic algoid or fungoid vegetative forms, having the property of rapid self-multiplication, and that the spores which proceed from these fungi or the cells of the algoid are wafted in like manner by the air from person to person, penetrating the systems of the healthy and establishing new colonies to generate disease in them.

That the presence of vegetable organisms is frequently found in the blood of men or animals suffering from infectious diseases, it is impossible to entertain a doubt. The testimony of all observers who have investigated this subject is concurrent on this point. They have invariably been found in the blood of patients suffering from the typhoid fever, smallpox, scarlet fever, puerperal fever, pyæmia, and septicæmia. In the pustules of the smallpox, Dr. Saulsbury, of Cleveland, observed a cryptogam, described by him as having a fungoid and an algoid development. In the cowpox only the algoid form appears. In typhoid fever the same writer has detected a peculiar algoid vegetation, developing itself on the surface of the entire body, and upon the mucous membrane of the interior cavities. He regards this as the efficient cause of the disease. Dr. Hallier, of Jena, has discovered a new and peculiar fungus in the rice water discharges of cholera patients, and in the intestinal canal of such persons. This plant has been described by him as being as marvellous for the rapidity of its development as for its strange forms of growth and its terribly fatal destruction of the epithelial tissue of the intestine. In the blood and bile of the cattle affected with the "Texas cattle disease," a few years since, and in the horses attacked by the epizootic a year ago, the presence of fungi of a distinct species was discovered.

A large number of experiments made upon rabbits and guinea pigs by inoculating them with the blood drawn from patients suffering from a great variety of these infectious diseases, including smallpox, measles, scarlet fever, typhoid fever, etc., leave little doubt that these organisms, which we have described, are in fact in these cases the vehicles of introduction and the causes of these diseases. Repeated inoculations seemed to aggravate the intensity of the disease, leaving little doubt as to their nature and effect.

He adds with great truth:

Investigations of this kind have a peculiar interest to life ins. cos., as tending to explain the fearful mort. which has devastated some of the southern cities during the present year, and which is liable to be repeated any summer. A clear and comprehensive understanding of the primary causes of these diseases will enable physicians to combat them with intelligence and certainty, and we may confidently expect that the time is not far distant when the cholera and yellow fever will be as much under their control as the smallpox. [DEATH, CAUSES OF.] [MORT. OBS.]

DISEASE, CORRELATIONS OF.—See CORRELATIONS OF DISEASE.

DISEASE-DESTROYING TREE [*Eucalyptus globulus*].—This tree, a native of Australia, appears, on what may be regarded as good scientific authority, to possess the extraordinary power of destroying miasmatic influence in fever-stricken districts. It has the property of absorbing water very rapidly, and when sown in marshy ground speedily reduces the superabundant moisture. Beyond this, it emits a strong antiseptic camphorous effluvia. The growth of the tree is very rapid, and it attains very considerable dimensions. The following instances of its utility have been laid before the Academy of Sciences:

The English were the first to try it at the Cape, and within 2 or 3 years they completely changed the climatic condition of the unhealthy parts of the colony. A few years later its plantation was undertaken on a large scale in various parts of Algeria. At Pardock, 20 miles from Algiers, a farm situated on the banks of the Haniye was noted for its extremely pestilential air. In the spring of 1867 about 1300 of the *Eucalyptus* were planted there. In July of the same year—the time when the fever season used to set in—not a single case occurred, yet the trees were not more than 9 feet high. Since then complete immunity from fever has been maintained. In the neighbourhood of Constantine the farm of Ben Machydlin was equally in bad repute. It was covered with marshes both in winter and summer. In 5 years the whole ground was dried up by 14,000 of these trees, and farmers and children enjoy excellent health. At the factory of the Gue de Constantine, in 3 years a plantation of *Eucalyptus* has transformed 12 acres of marshy soil into a magnificent park, whence fever has completely disappeared. In the Island of Cuba this and all other paludal diseases are fast disappearing from all the unhealthy districts where this tree has been introduced. A station-house at one of the ends of a railway viaduct in the Department of the Var was so pestilential that the officials could not be kept there longer than a year. Forty of these trees were planted, and it is now as healthy as any other place on the line.

There are several varieties of the *Eucalyptus*. They may be raised from seeds, and make very pretty evergreen shrubs for conservatories while small. It seems doubtful whether they will stand the English winter; but they may perhaps be acclimatized. They will be invaluable on the West Coast of Africa, and at many of our foreign military stations.

DISEASE, DISPOSITION TO.—See **DISEASE, PREDISPOSITION TO.**

DISEASE, DURATION OF.—It is asserted as a sound maxim that a disease is not removed until the symptoms characterizing it are removed.—*Beck.*

In the Appendix to the 1st Rep. of Reg.-Gen., 1839, Dr. Farr says: "*The duration of the fatal disease should be stated, when known, in hours, days, or years, which should supersede the words 'sudden,' etc., and in the end would furnish many highly important results.*" [**DISEASES, REGIS. OF.**]

DISEASE, GERM THEORY OF.—The active part of virulent fluids, such as are in operation in the production or extension of zymotic diseases, has been proved, by the experiments of M. Chaveau and Dr. Burden Sanderson, to reside in particles not larger than *one-twenty-thousandth part of an inch* in diameter. These particles are admitted to be living; and the question has been much discussed, whether they form a race of independent beings, like *Bacteria*, or are merely modifications of the organism from which they have become detached. The former view constitutes the basis of what is called the *Germ Theory of Disease*; the latter constitutes the ground and justification for the title *Graft Theory of Disease*. We intend to enter no further upon this subject than is requisite to make the respective terms convey an intelligible idea to our readers. We speak of the Graft Theory under its separate title.

Prof. Beale, even before Chaveau, had declared that the "active properties of vaccine lymph are entirely and solely due" to these corpuscles. He says that under very high magnifying powers they are seen as multitudes of very minute particles, exhibiting most active molecular movements.—Appendix to Rep. on *Cattle Plague*.

Again, Pasteur has estab., by ingenious and experimental research, that all those ferments most commonly in use consist of organic molecules, propagated from previous molecules of the same kind. "He has shown (says Dr. Farr), not that spontaneous generation is impossible, on the confines of the three kingdoms, under every possible condition, but that the fermentations in all the cases he examined were set in motion by specific pre-existing germs; multiplying indefinitely by reproduction under given conditions."

It has recently been ascertained that a minute portion of the mucus discharge from an animal affected with rinderpest, if placed in the blood of a healthy ox, increases so fast that in a short space of time the whole mass of blood, weighing many pounds, is infected, and every small particle of that blood contains enough poison to give, within less than 48 hours, the disease to another animal.—*Darwin.*

Dr. Farr says, in his *Report on the Cholera Epidemic, 1866, in England* (pub. 1868):

Natural Science has advanced so far then as to render it almost certain that the fermentations are actions of the simplest organic forms; and following in its wake we are justified in accepting the hypothesis that the zymotic principles of disease are specific molecules, which have the power of reproducing themselves in successive generations, growing and decaying by laws like the higher forms of life, not only under the same but also under modified conditions.

This subject has already been referred to in our general art. **DISEASE, 1873**; and it is further considered under **DISEASES, DEVELOPMENT OF.**

DISEASE, GRAFT THEORY OF.—To say that the Graft Theory of Disease is the opposite of the Germ Theory would hardly be sufficiently explicit; nor is the explanation of the difference which we have already given under **DISEASE, GERM THEORY OF**, sufficient to make the subject understood to the merely popular reader. In a paper, *On the Graft Theory of Disease*, read before the Brit. Asso. Congress in 1872, by Dr. James Ross, M.D., an attempt is made to explain the difference in popular language. The attempt cannot be said to be very successful; but it amounts to this: that minute particles separate themselves from the skin of persons affected, say, with contagious diseases; and that these detached particles attach themselves to other persons, either externally or internally, and produce in such other persons diseases of a similar character to those which affected the person from whom the particle originally passed. The power of grafts in the vegetable world to affect the stocks upon which they are grafted is quoted in support of this view.

DISEASE, LAW OF.—It has been held by some of the writers we have already passed in review, that disease is regulated by a law equally certain in its operations as the law of mort. We do not intend to enlarge upon this part of the subject here; it will be very fully considered under **SICKNESS, LAW OF**, under which head we shall have the advantage of the mort. experience of **FRIENDLY SOS.**

Dr. Farr, in his Special Rep. on the Cholera Epidemic of 1866, after showing the law which appears to regulate mort. from cholera [**DISEASES, RELATIVE FATALITY OF**], adds:

Smallpox, scarlatina, diphtheria, measles, and whooping-cough, *obey special laws of their own*: yet all of them agree in this—the mort. declines as age advances; but the fevers and the other zymotic diseases taken in the aggregate are more closely allied to cholera, for the deaths by them are most numerous at advanced ages.

DISEASE OR DISORDER TENDING TO SHORTEN LIFE.—It is common to all life proposals [applications] to ask the question whether the life proposed to be insured has suffered from any "disease or disorder tending to shorten life." The ordinary meaning of the question is very well understood; but when a legal interpretation becomes necessary, many considerations arise. These can be best disposed of by reviewing the cases which have been determined by the Courts.

In *Watson v. Mainwaring*, 1813, the facts were as follow :—Dr. Watson was insured in the *Equitable*. It was proved by a physician to whom Dr. Watson had applied for advice that his disorder was an affection of the bowels ; that this disease may proceed from either of two causes, the one a defect of some of the internal organs, the other a mere dyspepsia ; that the first would tend to shorten life ; that the second—though it renders the patient uncomfortable—does not generally, unless it increases to an excessive degree, tend to shorten life ; and that the complaint with which Dr. Watson was afflicted was not the organic dyspepsia. Several other medical men stated that they had attended Dr. Watson since the pol. had been effected, and that he was then quite free from the disorder. On the other hand, several medical men stated as witnesses for the defendants, that they had seen him at the time of his visiting Bath previously to effecting the ins., and that they then considered him as a failing man. It was left to the jury to say whether the plaintiff's complaint was organic dyspepsia, and if it was not, whether the dyspepsia under which he laboured was at the time of effecting the pol. of such a degree that by its excess it tended to shorten life. The jury found that it was neither organic nor excessive, and gave a verdict for the plaintiff. On the motion for a new trial, it was contended that since the insured afterwards died of the same disorder which he had before effecting the pol., that circumstance was conclusive proof that he was then afflicted with a disorder tending to shorten life ; but the Court held to the contrary, saying that it was a question for the jury. Mr. Justice Chambre remarked, "All disorders have more or less a tendency to shorten life, even the most trifling : as, for instance, corns may end in a mortification ; that is not the meaning of the clause ; if dyspepsia were a disorder that tended to shorten life within this exception, the lives of half the members of the profession of the law would be uninsurable." It was finally held, that it is not to be concluded that a disorder with which a person is afflicted before he effects an ins. on his life is a "disorder tending to shorten life," from the mere circumstance that he afterwards dies of it, if it be not a disorder which generally has that tendency. [DYSPEPSIA.]

In *Sweete v. Fairlie*, before the English Courts in 1833, it was held, that a pol. of ins. [in the *Globe*] on the life of another, who at the time of the ins. is in a good state of health, was not vitiated by the non-communication by such person of the fact of his having, a few years previously, been afflicted with a disorder tending to shorten life, if it appear that the disorder was of such a character as to prevent the party from being conscious of what had happened to him while suffering under it.

In the case of *Rose v. Star Ins. Co.*, 1850, where the proposal stated that the life ins. had no disease, or habits having a tendency to shorten life, it was held, that not stating a disease which did not have a continuing tendency to shorten life did not render the pol. void.

In the case of *Vose v. The Eagle Life and Health Ins. Co.*, before the Supreme Court of the U.S. in 1850, it was held :—1. It is the duty of the insured to disclose all material facts within his knowledge ; and the concealment of a material fact, when the general question is put by the insurers that would elicit that fact, will vitiate the pol., whether the statement becomes a warranty or not. 2. It is immaterial that the insured may not know that he is afflicted with a disease which is material to the risk. If he is so afflicted, and the fact is not stated, the pol. is vitiated. And where the insured stated that he was suffering from general debility, the fact being that he was actually in consumption, and he had been aware of the symptoms for some months, and that they were sufficient to indicate the nature of the disease, though in fact he did not know that he had consumption. Held, further, that the pol., which was conditioned to be null in case of a concealment of any material fact, was avoided. In this case it was laid down that knowledge of the co.'s agent as to the health of the insured would not affect the insurers.

In the Eng. case *Jones v. Provincial Ins. Co.*, 1857, the insured stated in the proposal form that he had not had certain diseases specifically named, and "that he was then in good health, and did ordinarily enjoy good health, and that he was not aware of any disorder or circumstance tending to shorten his life, or to render an ins. on his life more than usually hazardous," unless what was stated in answer to certain specific questions was so considered. He was ins. in 1855, and died in 1856. It transpired that in 1853 and 1854 he had had two very severe bilious attacks. The physician who attended him said there was nothing in them tending to shorten life, and that his health was as good after them as before. Two other physicians, one of whom had seen him during the last of those illnesses, thought that it did tend to shorten life, and render it not eligible for ins. ; but it did not appear that they had ever so told the insured—though one of them had cautioned the father that if the insured recovered, great care would be required to prolong his life. On the trial the judge told the jury that if the insured honestly believed, at the time he made the declaration in the proposal form, that these attacks had no effect upon his health, and did not tend to shorten his life, or to render ins. of it more than usually hazardous, the fact that he knew that he had had these attacks, even though without his knowledge they had such a tendency, did not avoid the pol. ; and on appeal this direction was held correct, the decision being placed upon the limited language of the provision in the pol., and the question being whether the statement that he "was not aware of any disorder tending to shorten his life," referred not merely to the knowledge of the insured of the disorder,

but also to his knowledge that it tended to shorten life. The Court held that he must be shown to have known both facts before the pol. could be avoided. [CONCEALMENT.] [DISEASED LIVES, INS. OF.] [FITS.] [FRAUD.] [MISREPRESENTATION.]

DISEASE, POWER OF RESISTING.—See HUMAN WILL.

DISEASE, PREDISPOSITION TO.—It is a theory among medical writers that, at least in the case of contagious or infectious diseases, there must be a constitutional disposition or aptitude to disease as a condition precedent to actual contagion or infection. On no other theory, they say, can we account for the circumstance that "one is taken and another left." The causes which invoke or produce this predisposition to disease vary perhaps with individuals; but imperfect sanitary surroundings, in the widest sense of the term, may be regarded as the general moving cause. [VITAL STATISTICS.]

Predisposition to a disease does not carry with it the idea of its actual presence—many causes may annihilate the predisposition; and even if present, a foreign cause may be necessary to excite the complaint.—Beck's *Med. Jurisprudence*.

Dr. Nichols, in his *Human Physiology*, 1872, says :

It is important to remark that two elements enter into the production of mort., if not all kinds of zymotic, contagious, or epidemic diseases. There is the malaria, miasm, or contagious matter, or the influence, whatever it may be, which determines the specific form of disease—as the contagion of smallpox or scarlatina, typhus or cholera; and there must also be the physical condition which predisposes the patient to be acted upon by the diseasing agent. Only a certain—and generally a small—proportion of persons suffer from epidemics. The greater number are protected by the purity of their systems, or the vital force which gives the energy of health. In every case the germ must find something to nourish it—the poison something which cannot resist its action. A healthy man, with unexhausted nervous power and pure blood—one who breathes pure air, lives upon a pure diet, and refrains from all diseasing habits, may pass unscathed through smallpox contagion, yellow fever, cholera, and defy the influences of deadly malarias. . . . In every epidemic nine-tenths of the mort. is among the classes who enjoy least of the conditions of health, and are most exposed to the general causes of diseases; and it is observed that the most fatal epidemics but slightly disturb the general average of mort.—that those who are carried off by them are mostly such as would soon have died of other diseases.

DISEASE REALMS.—Mr. Keith Johnston has prepared a map of the globe, in which he shows the various "Realms of Disease," marked with distinctive colours, in a particularly instructive manner. [DISEASES, GEOGRAPHICAL DISTRIBUTION OF.]

DISEASED CATTLE.—See CATTLE, DISEASES OF.

DISEASED AND IMPAIRED LIVES, INS. OF.—It is perhaps hardly surprising that the practice of Life Ins., which commenced with the almost indiscriminate admission of lives of all ages and of all conditions of health at a uniform prem., should, after a certain period of such experience, fall into what many regard as the opposite extreme, and reject at ordinary rates all who are not up to a certain high standard of health. The second position was but the natural sequence of the first; and the line has never become much relaxed, because experience shows that there is always a process of selection carried on against the office. [SELECTION.]

A considerable number of lives becoming, by reason of this stringency, excluded from the ordinary benefits of Life Ins., it was but natural that some extraordinary mode of dealing with such rejected cases should be devised—this was accomplished by a scheme for insuring what are frequently called "rejected lives," "invalid lives," or "imperfect lives," i.e. diseased or impaired lives; and the hist. and development of this scheme through its various phases, modifications, and experiences, we now propose to trace.

The first attempt to assess special rates of prem. in regard to specific diseases undoubtedly originated with the *Equitable* in 1762. That So. charged a 12 p.c. add. on its ordinary prem.—that is, about one-eighth more prem.—to ins. persons who had suffered from the *gout*. In 1781 this extra was reduced to 11 p.c. on the prem. For *hernia* it charged 11 p.c. extra computed on the prem. For persons who had not had *smallpox*, the extra charge was 12½ p.c. on the prem. In 1781 this extra was reduced to 11 p.c. In 1802 it was resolved to ins. persons who had had the *cowpox* at ordin. rates; but if they afterwards died of *smallpox*, the pol. was void. In 1823 the latter portion of this condition was left optional with the board. For *female* lives—girls and women under 50 years of age, called "Female Hazard"—such extra was charged "as might be adequate to the hazard." This was computed in a T. to be about 11 p.c. on the prem. From 1772, females were ins. at same rate as males. *Beer-retailers* were also charged an extra equal to 11 p.c. on the ordin. prem.

The *Eagle* Ins. Co. quite early in its hist. undertook the insurance of lives exposed to "special hazard,"—for instance, being then a F. Office, it issued pol. on the lives of its firemen. The bus. afterwards expanded into the ins. of diseased lives, of whom, we believe, some 2000 are or have been on the books. An investigation into the mort. of these lives as a class has been recently completed. We shall hope to glance at the results in our hist. of this Co.

In some of the early prosp. of the *British Commercial*, founded 1820, there is reference to the ins. of "Invalid Lives"; but after a careful perusal of many eds. of the prosp., we arrive at the conclusion that this was not an orig. feature of the Co.'s bus., but was added in or after 1824; and that department of its bus. was never actively pursued.

It was in 1824, on the founding of the *Clerical, Medical, and General* L. Office, that the Insurance of Diseased and Impaired Lives, as such, first took form and shape. The

promoter of that Co. was Dr. George Pinckard, and the ins. of lives "deviating from the common standard of health," so far as to render them uninsurable at any then existing office, was made a special and prominent feature of the operations of the proposed Co. Under CLERICAL, MEDICAL, AND GENERAL LIFE ASSU. So. we have given a complete outline of its proposals in this respect; and we need not repeat them, as the reader by reference can incorp. them into our present chap. Half the Board of Directors of the Co. was to consist of medical practitioners specially selected by reason of their eminence in relation to certain classes of disease.

The *Clerical and Medical* Office required compliance with the two following conditions before it entertained a proposal on any diseased life:—1. That the persons proposed for ins. should make a declaration stating the nature of their complaints, the dates of their first attacks, and the names and addresses of the medical practitioners who attended them then, or in any subsequent returns of their disorder. 2. That they pay an increased prem. proportioned to the increase of hazard,—that is to say, such as the managers of the office considered proportional to the increased hazard.

The former Act. of this Co., Mr. Geo. H. Pinckard (son of its founder), has given to the Ins. world the benefit of three several investigations into the mort. of the office, viz. in 1834, 1843, and 1849. These we have noticed under CLERICAL, MEDICAL, ETC., MORT. EXPERIENCE OF. In 1851 a further and more complete investigation, embracing a *résumé* of the entire experience of the Co. regarding its diseased lives down to 1849, was made. This we shall notice in the present art. under date 1851.

In the same year, 1824, and very shortly after the office last named, the *Asylum L. Assu. Co.* was founded. It especially had in view the ins. of persons who, "though far from being in a dangerous state, are not considered as select lives, and are therefore rejected as altogether uninsurable." An early prosp. said:

Many who are conscious of some slight bodily ailment, or supposed hereditary taint—a constitutional debility, or some peculiarity of form—are deterred from making proposals, by the apprehension that after they have disclosed circumstances of extreme delicacy, and subjected themselves to exposure by referring to their friends, to satisfy one board of directors, they may be rejected as altogether ineligible in that inst., and be driven to make similar exposures to another board of directors, on the chance of being again rejected, or left no other alternative than the payment of an extravagant rate of prem.

In many instances, especially in the case of pregnant females, it is desirable that the parties should be kept in ignorance of an assu. being effected on their lives. In others, persons are unable to furnish certificates or satisfactory evidence of the precise date of their birth: and many, from the death of medical attendants, and other fortuitous circumstances, are unable to comply with the forms generally required by L. inst. Officers on half-pay frequently decline to insure their lives, lest they should at a future day be called into unhealthy climates at the risk of forfeiting their policies, or submitting to an exorbitant rate of prem. for the extra risk.

Thus L. Ins., to which every prudent and well-disposed man turns his thoughts, is withheld from the very persons who, from precarious health or particular circumstances, are peculiarly entitled to receive consolation and to court protection.

The directors of the *Asylum L. Assu. Co.* have ascertained, by great care and research, *the true law of mort. for various climates and diseases: thus extending a certainty of assurance to those from whom its benefits have hitherto been altogether withheld.*

The *Asylum Co.* will assure the lives of persons going beyond the limits of Europe—predisposed to hereditary or other constitutional maladies,—of delicate health,—of peculiarity of form, whether natural or accidental—labouring under mania, melancholia, or any kind of chronic disorders unaccompanied with immediate danger,—females in a state of pregnancy,—persons engaged in unhealthy occupations,—and those who, from inadequate testimonials, uncertainty of date of birth, or other causes, would be subject to rejection, or an exorbitant rate of prem., at other offices.

Assurances will be granted at premiums proportioned to the risks proposed, not only with reference to the general healthiness of the climate, but to the particular service intended. For instance, the civil, military, and maritime services in the different Presidencies in the East Indies, will be charged at different rates of prem.

Officers and others, who are subject to be called abroad, although not under immediate orders, will be charged the ordinary rate of prem. according to the T. of the *Economic L. Office*, until they actually sail; from which period only the extra charge will commence. They will thus secure the right of going abroad at any period, at a rate of prem. fixed and agreed on from the commencement of the ins.

Persons of delicate health, or suffering from the effects of tropical climates, rupture, gout, or slight chronic disease, will be assured at rates of prem. duly proportioned to the nature and extent of their respective maladies. These rates are the results of accurate obs., and are in many cases lower than the premiums charged by the generality of offices to persons in robust health.

This is a general outline of the scheme of the Co. so far as it relates to the subject now before us.

The founder of the *Asylum Office* was Mr. Geo. Farren. The orig. intention was to confine the business entirely to the branches enumerated; but this was departed from on the severance of the connexion of that gentleman from the *Economic Life*, of which he was one of the founders—and which accounts for the special reference to that office in the preceding extracts. This severance occurred prob. not later than 1827 or 1828. Whether the mort. arising from the special classes of bus. orig. undertaken had anything to do with the unfortunate ending of the *Asylum Co.* does not appear. The mort. experience of this office was never pub.

In 1826 Mr. Geo. Farren pub.: *Observations on the importance in purchases of land, and in mercantile adventures, of ascertaining the rates or laws of mort. among Europeans, by chronic diseases and hot climates; on the data necessary for constructing T. to show the prob. duration of a disease; with illustrations of the progress of mania, melancholia, craziness, and demonomania, as displayed in Shakespeare's characters of Lear, Hamlet,*

Ophelia, and Edgar ; on the comparative danger of first and subsequent childbirths. With an appendix containing the form of a deed for estab. a joint-stock co. without requiring the aid of Parl. or the incumbrance of an Act to sue and be sued. The author says :

In tracing the prob. duration of a chronic disease, . . . the ages of some thousands who have suffered under that disease must be marked : care being taken to find out the age of each person when first attacked, and at the determination of the disease by cure or death. *This is the first step towards ascertaining the period of life at which the particular disease is most likely to prove fatal.* But as diseases have many varieties, and each variety may be treated as a new disease, this first step goes but a little way to show the prob. duration of the life of the sufferer under that disease. Scrofula is in itself one disease ; and it is also a predisposing cause to another—consumption.

The *Promoter Life*, founded 1826, undertook the ins. of "the lives of persons afflicted with diseases not immediately fatal," at "commensurate premiums."

Mr. Barber Beaumont, in his address to the members of the *Provident Life* in 1827, speaks of the efforts several then new offices were making to keep afloat, "even to the offer of ins. unhealthy lives on lower terms than the estab. offices require for the best."

The *Provident Life* in 1828 announced that persons removing to unhealthy climates, or subject to bodily infirmities, might be insured upon a full disclosure of the facts, and the payment of proportionate add. premiums.

In 1828 Mr. Wm. Morgan pub. : *View of the Rise and Progress of the Equitable So.* In that pamph. occurred the following passage :

I should be still more sorry to see the So. descend to the quackery of pretending to determine how many years should be added to the age of a person, according as he is affected with asthma, dropsy, palsy, etc., in order to fix the premiums at which his life is to be assured.

Mr. Geo. Farren, then President of the *Asylum Life*, claiming this remark to apply to "the system of which I am proud to be known as the author," [it is pretty clear that he was not,] replied to it in a long and able letter, which appeared in the *Times*, 1 July, 1828. He says :

Surely it would be difficult to contend that so great a blessing as Life Ins. should be afforded to the healthy, the strong, and the domestic man, yet denied to persons who are feeble, decrepid, or travelling. The question of first and last importance in life ins. is : Are the data from which the rates are deduced to be relied on ? . . . I will now respectfully submit to Mr. Morgan the materials which I think sufficient, and which I am able to show may be collected for insuring the lives of healthy and diseased persons in Eng., and of those travelling to foreign climates. . . . 2nd. As to chronic diseases, etc. 120,000 cases in which are detailed the ages and occupations of the parties when attacked, the course of treatment pursued, the period of duration of the disease, ending in death or cure. These, reduced into a tabular form, will, I respectfully assert, show the prob. duration of the life of a person so afflicted, with much greater certainty than the bills of mort. of the town of Northampton 60 years ago. Four or five thousand cases of childbirth will give the risk of pregnancy with sufficient precision, and show the comparative dangers of first and subsequent labours.

It will be observed that Mr. Farren does not say such data had been collected and collated ; his expressions lead to a contrary supposition ; but his argument certainly implies that they had been so dealt with.

In 1829 Mr. Geo. Farren pub. his *Observations on the Laws of Mort. and Disease, and on the Principles of Life Ins.*, etc., in which again he purports to show how materials might be gathered for determining the risk incident to lives exposed to risks of travel and residence in foreign climate. A good deal of curious learning is also displayed on the subject of Insanity, and its influence upon the duration of life. [INSANITY.] The writer says :

In tracing the prob. duration of a chronic disease, many other data will be necessary [than in obs. the influence of foreign residence]. The ages of some thousands who have suffered under that malady must be marked : care being taken to find out the age of each person when first attacked by it, and its determination by cure or death. This is the first step towards ascertaining the period of life at which the particular malady is most likely to prove fatal.

The distinct species of disease appertaining to men, women, and children, certainly cannot be brought lower in number than 500, including those of syphilis and pregnancy. Of these, many, as plague, and various kinds of leprosy, belong to foreign countries alone ; while others are so rare as to be hardly worth noticing ; whence 500 contingent diseases may be reduced to about 250 current diseases ; of which the acute are somewhat more numerous than the chronic, in the proportion of about 140 to 110.

The reader need not apprehend that essays on those 110, or the means of showing their prob. duration, will be given in the present work—the author is unequal to such a task ; and if he were competent to it, his readers would prob. be but few in number. His purpose is merely to call attention to the practicability of collecting and arranging materials so as to fix, with sufficient accuracy, the values of annu. and the rates of ins. on the lives of persons suffering under chronic diseases.

In 1833 Mr. Gilbart, of banking fame, wrote : "We may hereafter have tables that shall show the expectation of life, not only in regard to people in health, but also to those afflicted with every kind of disease."

The orig. prosp. of the *Argus L.*, 1833, contained the following : "Persons afflicted with gout, asthma, and other disorders not attended with immediate danger to life, will be assu. at moderate rates of prem. duly proportioned in each case to the nature of the risk."

In 1841 the *Medical, Invalid and General Life Assu. So.* was founded by or under the auspices of Mr. F. G. P. Neilson. An early prosp. said : "This office possesses T. formed on a scientific basis for the assu. of diseased lives. . . . Premiums have been determined for the assu. of persons of every age, among those afflicted with consumption, asthma, bronchitis, pneumonia, disease of the heart, apoplexy, insanity, disease of the liver, dropsy, scrofula, gout, rheumatism, etc." A later prospect, issued after Dr. Farr had undertaken the "Department of Medical Statistics," contains (*inter alia*) the following :

The Science of Statistics has only within a recent period been successfully applied to the duration and mort. of disease: and hence T. on the prob. of these results could not have been formed; and it would evidently have been unsafe and hazardous for any so. to have undertaken the risk of assuring the lives of persons afflicted with any particular malady. The statistical information now collected and in possession of this office is of so great an extent as fully to warrant the extension of L. assu. to such cases; and, in fact, to place the application of L. assu. on diseased lives on a more secure basis than even that of healthy lives.

It is hoped that while it is kept clearly in view that this So., in common with other offices, will assure the lives of healthy persons, it will be borne in mind that it is as yet the only one estab. to assure the lives of persons labouring under disease; and to this latter feature particular attention is directed, because (1) it opens a larger field for bus. than all other offices can have untidely; and (2) because the risk of assuring diseased lives must from its own nature be less, and its principles will be found on inquiry to rest on a more satisfactory basis than those which regulate ordinary assu.

These are two highly important facts, and we shall enter into an explanation of each; and first as to the prevalence of disease.

The period of life most important to an assu. office is that between 15 and 60 years of age; and in the following remarks reference is made to this period of life only.

It will be found that the deaths in the metropolis for the two years preceding 1842 were from all causes, 30,518; and from consumption alone, 10,688; showing that more than one-third of the total deaths in that period of life take place from the prevalence of a single disease; and if the same inquiry were instituted with respect to the existence of other diseases, such as asthma, dropsy, diseases of the head, heart, etc., etc., it would be found that more than one-half of the whole pop. would, on medical examination, be refused admission into an assu. office. If the inquiry be carried to the principal towns of England, like facts are elicited: in Birmingham, Liverpool, and Manchester, the deaths from all causes p.a. are about 5023, while those from consumption are 1988, forming considerably more than one-third of the whole. The same results are produced if the inquiry be extended further, viz. to the large populous towns of Scotland; since it will be found that in 6 of them the deaths in a given period from all causes amounted to 23,078; those from consumption to 6359; and from 6 important diseases 9754—in the latter case forming more than 42 p.c. of the deaths from all causes. On reference to the return for the City of Glasgow for 1836-40, it will be found that the deaths in that period from all causes were 14,107; from consumption 4087; and a list of 5 diseases, 6423, being more than 45 p.c. of the deaths from all causes.

The diseases here alluded to are such as exist in general in a chronic form—frequently for many years prior to death—but which, on a strict medical examination, would effectually exclude the persons so affected from the benefit of L. Assu.; and since it thus appears that a majority of the pop. is included in this class, the value and importance of the new feature of this So. cannot fail to be justly appreciated.

The second point is next dealt with, viz. that there is much less risk in assuring diseased lives than in the ins. of ordinary lives. This, says the prosp., “is a feature of permanent and vital importance to the interests of this So., and deserves to be carefully considered”:

The real risk incurred in all assu. transactions consists in the chances to which an office is liable of experiencing a different degree of mort. from that expected by the T. on which its calculations are founded. This difference is termed the fluctuation of mort., and will be found to be much less amongst diseased lives than over the general pop. and among selected lives.

The deaths from consumption in the metropolis p.a. are sufficiently near to the ann. number which takes place in Glasgow from all causes to admit of a comparison; and by reducing the matter to figures, it is found that while the fluctuation p.a. in the latter case is as high as 45 p.c., in the former it is only 9 p.c.; or, in other words, the fluctuation of mort. in consumption was only one-fifth the other; and in Manchester, Liverpool, and Birmingham, even with the disadvantage of smaller numbers, the fluctuation does not exceed 3 p.c., showing a remarkable uniformity in the law which determines the mort. of this disease, and that it is more positive and absolute in its results than that which regulates the general pop. Consumption has here been selected, not because it was considered more favourable in its results, but simply on account of the larger numbers affording a more satisfactory proof of the question under consideration; but the same test has been applied to a great number of other diseases, and like results have been obtained. Among 9 diseases in the metropolis, including asthma, dropsy, rheumatism, disease of the liver, of the heart, of the nervous system, etc., the fluctuation was only 7½ p.c.; and in 5 diseases in a different district the fluctuation was about 7 p.c.; while among 11 in another locality, and even with smaller numbers, the fluctuation did not exceed 6½ p.c.; and taking the principal towns in England, including Manchester, Liverpool, Birmingham, Leeds, Sheffield, etc., the fluctuation over 11 of the more important diseases was 6¼ p.c.

The remarkable uniformity in these results cannot fail to produce a conviction of the positive character of the law of mort. in disease; indeed there seems to be nothing within the whole range of the doctrine of prob. so well defined as the mort. of diseased lives. The mort. of the general pop. has frequently been referred to by writers as an example of the certainty of common events; but the preceding remarks will show with how much greater certainty the mort. of diseased lives can be depended upon. [MORT., LAW OF.]

It is perhaps right to state that in applying the test of fluctuation to disease, it has not been confined to one place or class of lives, but has been extended to the principal towns in England and Scotland, as well as to many rural districts in England; and included the experience of one or two large sos. of select lives. This has afforded an opportunity of judging of the effects of locality, and its sanitary condition on the duration of life; and a remarkable fact has been developed, viz. that the value of life generally is much greater in the country districts than in large cities; but that of those who suffer from disease, the value of life is nearly the same. As an example of this—the expec. at the age of 30 in the country districts is 36½ years; in cities (viz. Glasgow) 27½ years—difference 33 p.c. nearly; but take the case of persons of that age in whom the consumptive tendency is developed, and who will ultimately die of consumption, and their expec. of life in the counties of Essex, Suffolk, and Norfolk, will be found to be 14½; in cities (Glasgow) 14¼; and in the metropolis, Manchester, Birmingham 13½—difference .017 (or one-57th p.c.). It therefore appears that while the difference between country and town life in the former case is about 33 p.c., that in the latter instance (consumption) the difference is almost nothing, and the results nearly uniform. The same thing holds good with some other diseases which have been investigated in this manner. This fact, though not generally understood, is only what might have been expected by a careful consideration of the conclusions formerly arrived at—that the fluctuation of the law of mort. in disease is confined within a very narrow limit, and consequently little influenced by external circumstances. [TOWN LIFE.]

It hence appears that the fluctuation in the mort. of diseased lives is much less than among select lives and the pop. generally; and therefore the risk of assuring diseased lives must also be less. To apply this conclusion to the affairs of an assu. office, it may be stated that supposing the number of lives in a So. taking only selected lives was such that a T. of mort. would indicate 100 deaths p.a., it would be necessary to have always sufficient funds at immediate command to meet 145 deaths; and on

the other hand, an office assuring diseased lives only need not provide for more than 109 deaths p.a.; that is to say, *the risk of assuring diseased lives is to that of average lives as 9 to 45, or only one-fifth*. This fact is highly important to the interests of this So., and estab. beyond doubt the safety and correctness of the principles on which it is founded.

These passages are taken from "Obs. on the Mort. of Disease," prefixed to the prosp. of the *Medical, Invalid So.*, and we may assume that they derive their chief authority from Dr. Farr. In quoting them it is necessary to bear in mind that they apply (as already stated) to that portion of the pop. only which is between 15 and 60 years of age.

From the general prosp. of the So. we take the following :

This So. has collected and arranged so extensive a body of facts connected with the statistics of disease, as to reduce the practice of assuring the lives of persons afflicted with peculiar maladies to the same intelligible laws as those of ordin. lives.

The So. may be said to have at its command all the elements of success : for as it rejects everything in the shape of an arbitrary imposition of extra prem., and relies upon the care and discrimination exercised in selecting the materials on which its calculations are founded, no risk will ever be undertaken the nature of which is not thoroughly understood.

The data collected by the So., while they afford the utmost confidence in the safety of its principles, will, it is believed, contribute essentially to the progress of medical science, and thus be beneficial in more ways than one to the public.

The exact rates of prem. to be paid by persons labouring under disease in its various stages cannot be fixed until the So. is made acquainted with every circumstance and particular relating thereto ; and it is therefore necessary that the person whose life is to be assured should undergo a personal examination by the medical members of the Board, or one of the medical referees appointed by them. The So. does not therefore pub. its T. on diseased lives.

A few examples of the mode of working are given. Thus, as to *Annuities* :

If a person in good health of 40 years of age were to purchase an immediate ann., the sum granted him would be £64s. 7d. yearly as long as he lives for every £100 paid down ; but supposing he is afflicted with *disease of the heart*, the ann. granted in that case would be £11 2s. 5d.

Suppose 2 persons, each 40 years of age, and that one of them suffers from *dropsy*, and wishes to secure an ann. of £10 p.a. in the event of surviving the other : if both had been in good health, the ann. prem. during their joint lives would be £2 15s. ; but because the life in expectation is affected with dropsy, this So. would only ask £1 5s.

If a person aged 40 and in good health were to purchase a deferred ann. of £100 p.a. to commence 10 years hence, the single payment would be £922 ; but if he were labouring under the effects of *asthma*, the sum required would be only £480.

As to *Life Ins.* :

Suppose a person 40 years of age who has a tendency to *consumption*, though not suffering from the immediate symptoms of the disease ; and that it were proposed to assure a sum of money to be made payable in the event of surviving another person in good health and of the same age : the ann. prem. required during their joint lives would be £1 11s. 6d. ; but if both had been good lives, the prem. would have been £2 5s.

There are many other cases in which the assu. of diseased lives is absolutely more advantageous to the parties in point of economy than the assu. of healthy lives. . . . In loan and other monetary transactions it has often happened that the life of the debtor, from some defect of health, has not been assurable, and consequently the loan transaction could not be proceeded with, even when that of itself would have been highly beneficial to all parties : but this difficulty is completely removed by the system now introduced.

The purchase of rev. interests and annuities depending on diseased lives has been hitherto impracticable, from the impossibility of securing the orig. outlay by an assu. ; but as that can now be done by the So., the purchase and sale of such revs. may in future be conducted with the same facility as those on sound lives.

The So., with all these supposed advantages, did not transact a large bus. during its earlier years. Indeed for the first 5 years its operations were of a limited although of a progressive character ; but these points will be dealt with in the hist. of the office. The *mort. experience* of the Co., so far as we are aware, was never pub. In 1860 the bus. of the Co. was united with that of the *Albert*.

In our art. CONSUMPTION we have given, under date 1843, some remarks of Dr. Farr on the insurability of consumptive lives, as given in the 5th Rep. of Reg.-Gen., p. 440 ; and in our art. DEATH, CAUSES OF, will be found much information bearing upon Diseased Lives.

The prosp. of the *British Mutual*, 1844, said : "Persons afflicted with chronic or other disorders may be assu. in this So."

In 1845 the *England L. and Invalid-Hazard Assu. Co.* was prov. regis. and made the business of insuring diseased lives a very prominent feature. The promoters announced that "the Co. would have their separate tables for effecting insurances on lives in full health : for hazardous, double, treble, and quadruple hazardous ; and also for effecting assurances, for certain periods, *on lives which may be considered desperate*." There were several eds. of the preliminary prosp. of this Co. We take the following passages from the one now before us :

The plan upon which this Co. is based has been adopted after a most careful and minute investigation of the foregoing T. (table of the improved value of the shares of several existing offices) ; but the promoters consider they will be enabled to offer to the public another advantage far beyond those rendered by the generality of offices—that of effecting assu. on lives deviating in various degrees from a state of full health even to a dangerous condition.

Most of the Life Assu. Cos. of the present day refuse to risk assu. on lives unless in full health, or if afflicted with any complaint, in however trifling a degree it may tend to shorten the duration of human life ; yet fire offices will insure against damage by fire, and underwriters against loss at sea, under any risk, however great—but such assu. are effected at prem. proportionate to the risk.

This Co. will adopt the same principles, by assu. such risks at fair remunerating prem., for which purpose medical superintendents of first-rate talent will be appointed in the principal towns in the U.K., and in the Colonies, to aid the Co. with their valuable advice and assistance in each individual case.

We believe the Co. itself became desperately invalidated at a very early date, and never recovered its vitality to a sufficient extent to proceed with its intended bus. There were some excellent names from among the medical profession connected with the project. No actuary's name is given on the prosp.

In this same year, 1845, was also prov. regis. the *Practicable Invalid and General Life Assu. Co.*, from the prosp. of which we draw the following passages:

The chief object of this Co. is to render Life Assu. *practicable* to that large portion of mankind, the delicate, the weak, and the unsound, to whom it has hitherto proved nearly if not quite *impracticable*.

We shall show that the greater part of the pop. is debarred from the benefits of Life Assu. by the regulations of the existing sos., and that the office proposed will meet the wants of this portion. Not only is the necessity for such an office proved, but the certainty of its success.

It must be borne in mind that the operations of most of the existing cos. are confined to the assu. of parties who are in good health: in fact they refuse all whom they designate *unsound or doubtful lives*. Many offices indeed go further than this, and reject all but what they designate "select lives," i.e. lives which they believe will attain *more* than their expectancy.

Under this system, all persons of weakly frame or delicate constitution, persons in whose families hereditary disease has existed or is supposed to exist, are as a general rule precluded from assu.—2 or 3 cos. only professing to undertake the risk, upon receiving very heavy premiums.—premiums, which few but those who believe themselves to be in a most precarious state of health would consent to pay, and which many could not afford. Thus then by an immense proportion of mankind—upwards of two-thirds of the entire pop. (such amount being the ratio of invalids to persons of sound or assurable health)—it is evident the benefits of life assu. are too often unattainable, though to those very individuals its advantages are perhaps more essentially necessary than to others. It is to such persons the *Practicable Life Co.* proposes to render the benefits resulting from Life Assu. applicable.

Two special plans of ins. proposed to be adopted by the Co. are then set forth in some detail. We must be content with an abstract only:

First plan.—The office to grant the proposer a pol. for a sum certain, and give him the liberty of paying off such sum by such yearly or other payments as he may think proper—not being less than the would have to pay ann. as a healthy prem. on his actual age. He must also pay in add. a small ascertained sum (in the event of credit being given) in lieu of interest. If he dies before the debt is liquidated, the amount remaining due on the pol. will, of course, have to be deducted from it.

Second plan.—The So. to insure parties at rates fairly and equitably apportioned to the idea entertained of the prob. duration of their lives; and if the party assured lives beyond such period (*which will in all cases be admitted on the pol.*), then the extra prem. shall altogether cease, and the prem. payable as a healthy assu. at the age of the assured when he first entered alone be continued.

In add. to these plans, after the first 3 or 5 years, two-thirds of the entire profits of the Co. estimated ann. will be applied to the benefit of the assu. generally: to invalids on the *1st plan*—in reduction of their debt on the pol., or as a cash payment, or as an equivalent added to the pol., if there be no debt; and according to the *2nd plan*, in reduction of the extra prem.—thus a constant diminution of debt or extra prem. will be always in progress.

In every pol. issued by the Co. at extra premiums. will be inserted a clause binding the Co. to reduce such premiums at any time on the party proving he is restored to permanent health, to the satisfaction of two medical referees and their umpire.

The working of the first plan requires a few words of explanation. The prosp. assumes a case in which the charge for a £1000 pol. on a diseased life would be £750, "and though he died the same day, his representatives would be of course benefited to the amount of £250. And the longer period he survived, the more valuable would his pol. become, as it would be continually increasing by the operation of the system of profits adopted." "Note.—It must be borne in mind that a healthy life of 27 would, according to the estab. rates of assu., have paid in 36 years (his natural expectancy) from £710 to about £740 in ann. premiums for a pol. of £1000." We do not think the examples—several are given—very inviting to proposed insurers.

Regarding the practical working of the scheme:

The precise conditions on which the So will grant pol. to persons suffering under disease can only be determined on after personal conference. . . . When a proposal is made on the life of any person whose health deviates from the common standard, the individual, instead of attending at the board, may be seen by a medical director only; or in the country by a medical referee of the So.

As a monetary speculation, it is assumed, that the novel plans developed (some of which have received the approval of eminent actuaries) are well worthy of notice. . . .

The prosp. contained the names of several gentlemen well known in the medical profession, and in the commercial world. The "Consulting Act." of the Co. was James Hann, of King's College, Lond. We believe the project never reached maturity.

In 1846 was founded the *Medical, Legal, and General*, and it undertook the ins. of diseased lives "at such increased rates as the circumstances of each particular case may justly require." The board of directors was chiefly composed of medical gentlemen, many of them of considerable eminence in the profession. The Co. carried on business until 1857, when its pol. merged into the *New Equitable*; from thence to the *Briton* in 1862, the mort. experience of which Co. we have already given. The Act. of the *Medical and Legal* was Richard Wilsdon Morris.

In 1847 was projected the *Declined Lives and General Ins. Co.*; but it never got beyond prov. regis.

The *Architects, Civil Engineers, Builders, and Gen. Life Office*, founded in that year, undertook the ins. of "impaired lives," but did not make it a special feature.

In 1847 Mr. W. E. Hillman pub. (2nd ed.) *Illustrations of the Theory and Practice of Assu.*, and after introducing therein Dr. Farr's Mort. T. as to persons dying of *Consumption*, he offers the following remarks:

The importance of Tables formed of the value of annu. on diseased lives, will be evident from the following illustration: Hitherto when the value of a *Life Int.* in any property, or of a rev. to any

sum after the death of a person subject to any disease, had to be ascertained, the actuary had to compute it from the *mass*, making no allowance for the present state of health of the person on whose life the transaction depended. Suppose two annu. of £100 each depended respectively on the continuance in life of two persons: one a robust healthy man, and the other a person predisposed to consumption, each of the age of 20 years; it would at once be seen that the value of one *must* differ considerably from that of the other: for it is found by the above T. that the expectation of life in one is 36 years, whilst in the other it is only 22 years. It may be gathered also from the "Decennial Life T." that a man in good health at the age of 40 has as good a chance of life as a man 20 years younger, who shall die of consumption. These remarks apply to *males* only in London.

From T. of the *present value* of annu. on diseased persons, of a more extended character than that given above, the following results of the value of a *L. Int.* in the proceeds of £1000 in 3 p.c. Consols "at par" are computed at 3 p.c. compound int.—the ages 30. The different amounts will tell their own tale:

Carlisle T., mass	£586 13 7	Persons dying of Consumption ...	£359 6 2
Persons dying of Gout	541 4 7	Persons dying of Disease of Heart	465 7 2

In 1848 the *Gresham L. Assu. So.* was founded, and for some years the bus. of this office was specially identified by the ins. of "Declined Lives." The orig. prosp. contains the following passages:

The peculiar feature of this So. is comprised in the 2nd branch, which consists in undertaking assu. at fixed and pub. rates upon such lives that have been declined by other offices as shall, upon *examination by experienced physicians*, be deemed eligible for assu. with this So. The necessity for an office of this kind is evident from the fact that some thousands of lives are ann. rejected, and that there is no office which entertains such lives as a class, except at most extravagantly high rates. This So. has obtained a mass of facts which prove that a very large proportion of lives thus declined are not unsound lives, but are rejected in some instances entirely in opposition to the opinions of the medical advisers; frequently from doubts in the minds of the directors, suggested by the personal appearance of the individual, or the unsatisfactory answers of his referees, that the party "lives well" or "occasionally takes a cheerful glass"; and often simply because the evidence obtained does not show the life to be *robust*. In such cases the proposed assurer becomes one of the "declined lives"; and if he still seeks the benefit of L. assu. is generally compelled to resort to offices which ins. *diseased* lives at a rate of prem. not at all adapted to his particular case.

It will be observed that this So. does not undertake to ins. *the lives of confirmed invalids, or diseased persons, but only such of the declined lives as may be deemed eligible after a careful medical examination, aided by the testimony of persons acquainted with the habits and constitution of the proposed assurer.*

As, from the circumstance of the lives that may be accepted by this So. under this branch of its operations having been rejected by others, some doubt must be allowed to exist as to their eligibility with lives that have not been declined, it is intended to cover this contingency by a moderately increased rate of prem.; but in order that such increased rate may not be a permanent tax, it is proposed to allow all lives so assured, from time to time, at intervals of not less than one year, to require a re-examination by the medical officers of the So. with a view to ascertain whether the causes which orig. led to the assessment of their prem. on the higher scale, are still existing or have become removed; in which latter case the So., upon being satisfied of the fact, will thenceforth assu. such lives on the same rate of prem. as would be applicable to an ordin. life of the age of the assured at the time he orig. effected his pol.

The declined life branch will be entirely distinct, and a separate account will be opened; and 80 p.c. of the profits that may accrue in this branch will be apportioned exclusively to those assured therein upon the parti. scale.

It may be stated that the actuaries of many of the leading ins. offices of London have expressed their entire approval of the above plan. . . .

A later prosp. contained the following:

As but one fixed extra rate will be charged for declined lives, the So. will consequently accept such only of them as the board of directors, aided by their medical officer, shall consider to come within a class the risk of whose lives would be covered by such fixed extra rate. . . .

The medical adviser of the Co. was Alfred Smee, F.R.S., and the Consulting Act. Mr. J. H. James. The bus. of the Co. was small at first, but became rapidly progressive. At an early date a rule was estab. not to take bus. from the agents of other cos., other than "declined lives." The mort. experience of the Co. has been pub. on two occasions—1868 and 1871—and will be referred to under those dates (see 1851 and 1861).

In the prosp. of the *Ægis* (1848) there was the following:

This Co. affords to persons temporarily afflicted the facility of assu. their lives at a prem. carefully adjusted to the increased risk; and permits them, on submitting to a fresh examination at the end of the first, or of any future year, and being then found in perfect health, to have their future prems. reduced to a proportionate rate of assu.

The *Cambrian and Universal*, 1849, contained in its prosp. the following:

Declined or Invalid Lives.—Proposals upon lives rejected by other offices liberally reconsidered by this. Insurers of this class may arrange, either for a fixed prem. without re-examination, or to apply at a future time for a medical reinspection, in order to have their rates of prem. re-adjusted. Agents of other cos. allowed the usual commission upon proposals declined by their respective offices, and accepted by this. Proposals on invalid lives entertained.

Mr. W. E. Hillman was Consulting Act. The Co. obtained very little bus. of this class.

In 1849 the *London Mutual Life and Guarantee Society* was founded, and its prosp. set forth that the directors "would give favourable consideration to proposals from diseased or non-select cases, at prems. proportioned to the risk; a system especially advantageous to parties whose health may have been impaired by over-attention to business, foreign residence, etc."

In 1850 the *New Equitable L.* Office was founded. The majority of its board consisted of well-known physicians and medical men. The prosp. said: "Invalid lives are assured at rates adapted to the particulars of each case, every circumstance affecting the health being impartially considered." A little later it made a more special feature of this branch of bus.; but its publications did not evolve any new ideas upon the subject. In 1862 the bus. of the Co. merged into the *Briton*.

In 1851 Mr. Samuel Brown wrote :

The question of the assu. of diseased lives is almost a novelty. The facts are yet to be sought for in the records of the offices which have lately undertaken this class of risks. Some obs. of this kind have been given in the Reg.-General's reports, and others in various medical journals; but all are wanting in that minuteness of inquiry and careful classification which are found where there exists a strong motive for careful selection, and the power of requiring all the facts to be stated.

Mr. Scratchley, in his *Treatise on Life Ins. Soc.*, etc., pub. 1851, speaking of the system of indiscriminate rejection of all other than first-class lives, continues :

So restricted a system is unnecessary, for, if a scale of increased rates were deducted from obs. of an extensive average of each disease, and applied by a skilful medical officer as a guide in each particular case, then a large number of apparently impaired lives, we believe, might be assured, who would be found to yield a return less productive of loss to the society, than a similar number of strong persons (assured at the ordinary rates), whose self-security in the possession of health renders them indifferent and careless of precautions. The old saying, of "a creaking door lasting longer on its hinges," is, by the experience of assu. cos., found to be true.

Again :

We urge, therefore, that the field of assu. should no longer be limited; that, inasmuch as life assu. is merely the result of judicious money-measurement of the contingencies of human existence, the system may safely be extended; that attempts should be made to determine a proper charge for the general assu. of lives, however apparently they may have departed from the assumed standard of average good health. If this were done, we should cease to meet with aged persons, who tell us of their having been declined by such and such an office when young.

The orig. prosp. of *Athenæum L.*, 1851, said : "Diseased lives ins. on equitable terms, the extra prem. being discontinued on restoration of the ins. to permanent health. Members of consumptive families assu. at equitable rates." A later prosp. (1854) thus enlarged upon these features :

The *Athenæum L.*, having completed a valuable and unique set of T. for diseased lives from unquestionable and scientific data, are enabled to transact this peculiar bus. with the same facility as the ordinary—each life being taken at the proper age on a specific table, classifying the stage of disease, and exemplifying the prob. duration of life. These principles they are now ready to apply, and appeal especially to the medical profession for their aid and co-operation.

Then comes the feature of granting annu. according to the expectation of life, "thus giving to annu. the largest possible return for their investment" :

The usual mode of granting annu. is merely to consider the age of the individual, without any regard to whether he has a disease tending to shorten life, or is hereditarily afflicted, or is otherwise situated so as materially to affect his chance of life. In assu. a man at death, the utmost care is taken to ascertain the chance of life, because it is the interest of the office to ascertain it, and to discover whether there is a prob. of its continuing long enough to pay. But in annu. transactions the sooner the investor dies, the greater the profit to the grantor of the annu. This, however, is not just to the annuitant; for it is not right that the man who is tainted with consumption should get no more for his investment than a perfectly sound life. The one may live for 10 years and the other 30; and thus for the same amount of purchase money the former should derive treble the income.

Mr. Neison was the Act. of the Co.

In 1851 Mr. G. H. Pinckard, the then Act. of the *Clerical, Medical, and General*, read before the Inst. of Act. a paper : *The Practice and Experience of the Clerical, Medical, and General L. Assu. So., chiefly with reference to Invalid Lives*. This paper is pub. in *Assu. Mag.* [vol. i. p. 273], and shows the experience of the Co. for a period of 24½ years, viz. from June 1824 to Jan. 1849. The plan adopted for obtaining these results is based upon that employed by Mr. Arthur Morgan in his *Mort. Experience of the Equitable*, pub. 1834, and the results are furnished in the following T. [1.]—the numbers in each col. being arranged in decennial periods :

[T. 1.] Age.	Totals of the Nos. who attained to each age.	Living 1 Jan. 1849.	Discon- tinued.	Died.
2 to 10	25	4	1	—
10 „ 20	107	14	7	2
20 „ 30	749	70	79	17
30 „ 40	2550	191	136	33
40 „ 50	3464	260	131	63
50 „ 60	2489	251	92	67
60 „ 70	1421	108	36	77
70 „ 80	498	49	4	45
80 „ 88	48	7	1	4
Total...	11,351	954	487	308

[T. 2.] Ages.	Clerical, Medical, and General.	North- ampton.	Carlisle.
	one death in	one death in	one death in
20 to 29	41'8	64'0	131'6
30 „ 39	75'2	54'0	95'0
40 „ 49	54'0	52'0	70'3
50 „ 59	36'5	30'0	54'3
60 „ 69	18'2	21'0	24'8
70 „ 79	11'0	11'0	12'1
20 to 79	39'5	37'0	64'7

The above T. [1.] relates to diseased lives only; and but one pol. is included on the same life. Those charged extra for risk of climate, etc., were not included. From T. No. 1 the second col. in T. No. 2 was formed.

By T. 2. it is seen that, taking all ages from 20 to 79, the mort. had kept rather below that of the *Northampton T.*—a fact of importance in relation to the circumstance that for the last 6 years under obs. the prem. charged had exceeded that deduced from

the *Northampton T.* by fully 25 p.c. This experience, being regarded as very remarkable, was tested again for the year 1849—which gives an increased mort. experience of 1 year, with the following result :

Ages.	Living. Jan. 1, 1849.	Half of Discon- tinued deducted.	Number Living.	Half of New Policies added.	Correct Number, Jan. 1, 1849.	Died in the year, by Clerical, etc. Office Books.	Died by Northampton T.
10 to 19	18	<i>Nil.</i>	18	<i>Nil.</i>	18	1	<i>Nil.</i>
20 „ 29	70	1	69	2	71	1	1
30 „ 39	191	5	186	15	201	1	4
40 „ 49	260	8	252	23	275	1	6½
50 „ 59	251	6	245	15	260	6	8½
60 „ 69	108	3	105	10	115	10	5½
70 „ 79	49	2	47	1	48	5	4
80 „ 88	7	<i>Nil.</i>	7	1	8	<i>Nil.</i>	1½
	954				996	25	31

As the result of his investigation, Mr. Pinckard candidly said :—“As there is at present (1851) but one other office (*viz.* the *Asylum*) which can have accumulated any very considerable amount of important facts regarding the risks on diseased lives, it would seem that there do not as yet exist sufficient data for the formation of *T.* for the assu. of such lives.” He added : “*Tables formed from the mort. on all the diseased lives, taken indiscriminately, would evidently be of very little value, as the prem. required for bronchitis, or liver complaint, would not suffice for a person suffering under consumption, or disease of the heart.*” He offered these add. obs. :

If practical T. for each separate disease are ever to be formed with confidence, it can only be when experience has become much more extensive. In the mean time, the results obtained are such as to justify a perseverance in the system which has been in operation in this So. during the last six years. Combining, as it does, an experience of a quarter of a century, with a vigilant observation of the results of that experience as it grows from year to year, a scientific and practical classification of diseases, and a careful application of medical skill in each individual case, it affords a reasonable prospect of arriving at correct conclusions. And it has proved in its operation beneficial to the public : for many persons, whose lives would otherwise have been rejected as wholly uninsurable at most of the other Offices, have been accepted by the *Clerical and Medical*, on terms proportionate to the risks incurred ; while the profit thus yielded to the So. has been on a very moderate scale, and somewhat less than that derived from the healthy business.

The system may perhaps still admit of modifications and improvements ; and I am well aware of the insufficiency, in some respects, of the calculations that have been presented : but as it has been so far matured and worked with success, it may, by the continued application of the same thought and labour, be ultimately rendered complete ; and thus that which, in the first instance, was little more than conjecture, will gradually become converted into something approaching to certainty.

If there be any office which, for a period exceeding five years, has been in the habit of accepting invalid lives, and in which a careful comparison between the healthy and unhealthy portions of their business has not yet been made, it appears to me prudent, for the welfare of such office, that a thorough investigation should take place. Numerous instances have, from time to time, come to my knowledge, where the additional prem. required has been very slight ; and I cannot help thinking, that on investigation, it will prove generally to have been insufficient to meet the extra risk.

If it is thought that the large number of claims by death which may have been made in the first few years will be compensated by the increased longevity of the survivors, who may be presumed to have perfectly recovered from the malady existing at the time of assu., such expectation (if the 25 years' experience of the Clerical, Medical, and General L. Assu. So. may serve as a guide) will assuredly be disappointed.

When it is remembered that the actuary who made these investigations was the nephew of the founder of the office, and had been familiar with all the ramifications and aspects of the bus. over a considerable period of the existence of the So., it will be seen that the greatest possible reliance may be attached to the results deduced.

No further separate investigation of the mort. experience of the office has been made since 1850 : although we believe such a step is in contemplation at an early date. But the office contributed its data for the purpose of the compilation of the *Inst. of Actuaries Experience T.* in 1869 ; and the number of its cases prob. had an important bearing on the general results shown by the *T.* of diseased lives hereafter given.

The 3rd Ann. Rep. of the *Gresham*, 1851, contained the following passages :

During the past year, however, the directors have resolved to limit the assu. of lives to persons who are strictly temperate in their habits, inasmuch as they find a very high and uncertain mort. appertains to those who are in the slightest degree addicted to intemperance.

Although the ratio of mort. is unquestionably higher amongst the declined than the healthy lives, the directors have much pleasure in stating that this branch of their bus. shows a highly satisfactory result. Many who were assured in the first years of the So. at an advanced rate have, during this year, on re-examination, been found to have attained so improved a standard of health as to enable the directors to reduce, and in some cases to remit the entire extra prem.

The *Counties Union L., etc.*, 1852, said in its prosp. :

Many lives are rejected daily by most L. offices which are perfectly eligible for assu. at fair and moderate rates of prem. It is a feature of this Co. that such lives are admitted to the benefit of L. assu. on equitable terms. Should persons assu. under this head regain their position as first-class lives, and the same be satisfactorily reported by the metropolitan medical officer of the board, their rates will be reduced accordingly.

The *Deposit and General*, 1852: "Diseased lives, and lives 'declined' by other offices, accepted on equitable terms."

In 1853 the *Achilles* (No. 2) undertook the ins. of "lives which had been rejected by other offices"; and in the 2nd Ann. Rep. of the Co. (1855) there occurred the following passage:

They [the directors] consider that such lives not unfrequently prove to be of the best and most profitable character. They believe that some of the best class of pol. granted since the foundation of the Co. are on lives that have been arbitrarily rejected by other offices. The directors are now instituting an examination into the statistical and other data connected with this class of assu. risks, with a view of definitely ascertaining from authoritative sources the rates at which such lives may be taken. They may therefore confidently state that no proposal submitted to them will be rejected for insufficient or mere empirical reasons.

The *British Protector*, 1853, announced that "lives declined by other offices are accepted at equitable rates."

The *General Indemnity*, founded 1853, said:

Declined and Diseased Lives.—Persons who are not in such sound health as would enable them to ins. their lives at the tabular prem. may be ins. at increased rates, to be agreed on in each particular case; and upon proof of restored health, an equitable reduction will be made on the amount of prem.

The Select Parl. Com. on Assu. Asso., which sat in 1853, approached the subject of diseased lives once or twice, but did not pursue it. Indeed it only came before that body as an incidental consideration. In the examination of Mr. Charles Ansell, this question occurs:

813. Take, as one element in the account of outstanding risks, diseased lives; take a single case: a *gout* prem., estimated in consequence of the state of the individual; or a skin complaint, upon which you would be advised to add so many years to the life, say 10 years to a life of 30, so that you take the life at 40; should you consider that all the risk was compensated by the rate of prem., or would you, in valuing the outstanding risk, value the life as if it were 30 or 40?

Answer:

That is one of the points upon which I have tried to explain that there would be so much difference of opinion, that without a knowledge of the internal state of the accounts to which it applied, if you attempted to make a [Gov.] valuation, I believe it would be more likely in many cases to mislead than to guide; and the object of the legislature would be to guide, and not to mislead.

Dr. Farr, in his letter contained in 12th Ann. Rep. of Reg.-Gen. (pub. 1853), says:

The selection of lives is not yet fully understood, but it may be broadly stated that 27 in 1000 men of the pop. of the age of 20 and under 60, are suffering from some kind of disease or other; that several of the diseases are of long duration, that others are recurrent, and that some are hereditary; that consumption, the most common fatal disease, lasts on an average 2 years, although it varies considerably in duration; and that cancer—another form of chronic fatal disease—is much more common in women than it is in men.

The *Brit. Equitable*, 1854, had a "Declined life department":

Such lives are assu. in this office on equitable terms. Any person assu. under this class paying a fee of £1 rs. may be re-examined at the end of any interval of time as to the state of his health, and the directors will make a just reduction of prem. in those cases in which an improved state of health and other circumstances warrant it.

The *Caxton L.*, 1854, announced as follows:

Lives under the average of full health, and lives which may have been declined by other offices, assu. on terms adequate to the add. risk; excluding only all cases of actual disease and of intemperate habits: with these especial advantages, that on proof of amended health, a proportionate reduction will be made in the prem.; and on an entire restoration to health, the charge will be reduced to the ordin. rate.

The *Diadem L.*, 1854, announced "Invalid lives assured at an equitable rate."

In 1854 the *Magnet L.* Office was founded, and its bus. embraced not only first-class lives, but also "those which may be found to deviate from the standard of full health; excluding only cases of actual disease and habits of intemperance." It was understood that the Co., for a short period, transacted a considerable bus. in impaired lives. Mr. Hillman was its Act.

The *Absolute L.* (1856) undertook the ins. of lives "deviating from the standard of full health at a small increase of prem."

The *Commercial L.*, 1856, undertook these ins.:

Proposals will be entertained from parties who may have been declined by other offices, who are not the subjects of actual disease or intemperate habits; and if an assuer, from temporary indisposition, who has been charged an extra rate of prem., should, after a lapse of time, consider himself more eligible for assu., he can be re-examined; and if the report be favourable, the directors will be prepared to reduce the prem. to the ordinary rate.

Mr. Neison says, in his *Contributions to V. Statistics*, 1857, "Various diseases have a maximum and minimum effect in destroying life at certain periods." He also gives some details regarding the influence of intemperance upon certain diseases. [INTEMPERANCE.]

Again:

One of the questions in which the actuary should be most interested, and for which he is but indifferently prepared at present, is that of the tests which should be applied to members seeking admission into an assu. so. The very mention of this subject opens up to view a most fertile field of inquiry, almost entirely neglected, even by the medical profession itself. Among more obvious questions may be mentioned, the power of diseases usually called hereditary in developing themselves in succeeding generations of families in which they have once appeared.

The prosp. of the *Brit. and Foreign Reliance*, 1857, contained "Diseased, Doubtful, or Declined Lives":

To persons afflicted with any disease which does not tend materially to shorten life, pol. will be

granted at rates adapted to each particular case, the prem. being increased in proportion to the degree of risk incurred.

Dr. Farr, in his pamph. on Gov. L. Ins., *A System of Life Ins.*, etc., prob. pub. about 1858, says :

The life T. is based upon the mort. of the whole of the pop., which includes the sick as well as the healthy ; so that with a due add. for expenses and fluctuations in the int. of money, the whole pop. can be safely ins. at the tabular rates. But it is evident that no office can ins. the lives of all who *voluntarily* seek to insure ; as the sick and infirm will apply in undue proportion. The sick and infirm can be insured, by adequate prem., as safely as the healthy ; and this is effectually done by the *Medical and Invalid L. Office*. *Such a special contingency, and others of the like kind, are best met by offices of a proprietary character.*

In 1858 the *London and Yorkshire Ins. Office* was founded ; but it was not till 1861 that it commenced insuring "diseased and doubtful" lives. A prosp. of that date contains the following :

Intending assurers below the average standard of health can be assu. in this Co. without extra prem. payable during their lifetime. Parties rejected by other offices, or accepted subject to extra prem., are requested to examine the *new scheme* of this Co., and the attention of assu. agents is called to its applicability where parties decline to complete proposals under the old plan.

The new scheme was that of Mr. Black, to be presently noticed (1861).

During the years 1860-1 detailed investigations were made into the mort. among the various classes of diseased and healthy lives ins. in the *Medical Invalid*, "for the purpose of determining the sufficiency of the prem. charged in the various cases." These investigations were made by Mr. T. B. Sprague. The results, so far as we are aware, were never made public. The Co. indeed became united with the *Albert* while the investigations were in progress. Dr. Farr, we believe, took some part in the inquiry.

In 1861 Mr. Maurice A. Black pub. a pamph., *The Assu. of Diseased and Doubtful Lives on a new principle, more advantageous and equitable to pol.-holders than the system hitherto adopted*. This little work engaged considerable attention. The writer says :

We have already explained the necessity for assu. only perfectly healthy lives at the ordin. rates of prem. But it does not therefore follow that it is incompatible with the principles of L. assu. to extend the system on an equitable basis to the class which we have characterized as doubtful, and likewise to the class denominated diseased or invalid. Some 40 years ago the idea of ins. any other kind of lives than select ones, such as described in the last chapter, would have been considered a perilous or rash enterprise. The thing was nevertheless attempted, and has been carried out with a reasonable measure of success and safety on the part of more than one co., but with a very questionable degree of equity to the individual persons assured. . . . It continues to be a fact, that all the offices who are now assu. lives more or less diseased have no data to guide them to the correct equivalent for the extra risks they incur. The Act. of the office already alluded to [Mr. Pinckard, above quoted] gives it as his opinion "that there does not yet exist sufficient data for the formation of T. for the assu. of such lives," etc. . . .

Our next inquiry naturally is—If there be no correct Diseased Mort. T., what system has been and continues to be pursued by offices in their absence ? On what principles are the extra prem. for the assu. of diseased and invalid lives assessed ? The plan is this :—The applicant for assu. after lodging a proposal in the office stating every particular relating to health, habits, and family hist., has next to appear before the medical officer or referee of the co., for the purpose of enabling him to testify, after personal examination, as to the soundness of the life in every particular, and generally as to the fitness of the individual for admission as a first-class life. The result of the examination frequently is that the medical referee has either to recommend the life to be declined, or accepted at a number of years added to the age of the proposer, varying from 1 to 25. Out of the total number of proposals received by L. offices, perhaps 1 in 3, certainly 1 in 4, are either declined or accepted at an extra prem. Most of the old L. offices, and some even of the modern, accept only first-class lives. In that case if the medical officer find the life below the perfect standard which he has set up for admission to the office he represents, his only alternative is to recommend the case to be declined. If, however, he should be examining for an office willing to assure lives in less than robust health, the medical man is invited to state his opinion of the extent to which he thinks the life is deteriorated, and the number of years by which the individual's expect. of life will be shortened. More generally the question is put—How many years ought to be added to the present age of the proposer to compensate for the extra risk the office incurs ? The board of directors then come to a conclusion from the information supplied by the papers, aided by the judgment and experience of their act. and sec. ; but they are principally guided to a decision by the opinion of their medical examiner, founded as it is on a personal examination of the applicant.

He then proceeds to the following considerations :—1. Is there any system in the plan pursued ? 2. Are diseased lives assured on equitable terms under it ? 3. Does it secure a uniformity of charge by different cos. for extra risk on diseased lives ? We cannot follow the writer in detail through these inquiries [some of these points will be considered under MEDICAL SELECTION], nor is there any necessity to do so. We must be content with the following passages :

. . . Leaving out of the question the necessity for T. formed from experience, we proceed to mention a few of the causes which will more or less affect the correctness of the plan at present pursued, and cause medical men to err at one time in favour of the assured, at another time in favour of the office.

1. The medical referee's knowledge and experience is doubtless the main element, and at first sight it might be thought the only disturbing element. We make no further comment on this point than just to mention one fact, viz. that offices find a marked difference in the mort. among lives examined and passed as first-class by some medical men, from the mort. among an equal number of lives examined and also passed as first-class by others. Whether the benefit to the office be more apparent among the lives examined personally at the chief office by the co.'s physician, or among the lives passed by the referees in the country, we shall not be so invidious as to state, inasmuch as the data on which we found our opinion has not been made public. But the fact is now pretty well estab. that a marked difference does exist, and therefore that a medical man's estimate of what constitutes a first-class life is frequently at fault. If that be so when first-class lives only are concerned, there is much more reason to suppose that errors in judgment will exist in respect of lives deteriorated in health, when the nicest discrimination is necessary to protect the co., and yet not overcharge the individual.

2. If an office have a physician or referee eminent both for his medical knowledge and experience, but if he has made a particular disease a special branch of study, is it unlikely that his special knowledge may not cause him to take an exaggerated view of the case before him? Or, on the other hand, that his special information will not cause him to undervalue the risk? Either extreme is not an unfrequent result of confining one's attention exclusively to one subject. Again, the fact of a medical referee having lost several patients from the disease which the person he is examining suffers from, or has a tendency to, will, we think, bias his judgment; and cause him to think the disease more fatal and the mort. greater than it really is; whereas perhaps more was attributable to untoward or unforeseen circumstances. An opposite result would take place if he had been singularly fortunate with such cases.

3. It is possible, we think, that a medical man may sometimes err by putting on a larger add. than he thinks necessary, for the sake of his professional reputation. He will naturally enough be anxious to protect himself, in case his judgment should be called in question by the co. he represents, in the event of the pol. becoming an early claim.

4. Another reason, and it is one of no small importance.—The majority of lives assured are examined by referees in the country, and they are subsequently submitted to the co.'s physician at the chief office. Now, the referee's report may appear to be unsatisfactory, when, in reality, the damaging facts may only arise from want of minuteness in detailing particular symptoms. The report, perhaps, does not disclose the whole truth, but its examination may elicit enough to justify suspicion. We fully believe many proposals examined by the referees in the country are passed with additions, when a little correspondence between the medical men would make the matter more clear, and render the extra charge unnecessary.

5. We have reason to believe that sufficient importance is not attached to the relative value of the add. made at different ages. If an extra prem. is represented by, say, 10 or any other number of years to a young life, the same add. is by no means equal when a much older life is being assured, and *vice versa*; of course we are assuming that the circumstances of both lives are precisely the same in the opinion of the medical officer.

Owing to such circumstances as these, and which are inseparable from the plan pursued, Mr. Black considered it would be admitted "that there is no rule to guide, nor system by which to act in assessing extra prems." Regarding his second head of inquiry, he says:

Let us suppose the case of a person making a proposal for assu. to be affected with heart disease, chest affection, or liver complaint. The measure of damage done to a life afflicted with either of these or similar diseases is relatively different according—(1) to the age of the person; (2) whether or not his parents or near relatives have been similarly afflicted and died from the disease; (3) according as the individual's constitution is strong or feeble; (4) the result is likewise affected by the number and frequency of the attacks. Now, individuals will present themselves for assu. with a particular disease common to each, but relatively affected, that is, the damage done will be different in each case, according as effects are likely to be produced by the circumstances we have alluded to. In proportion as they are more or less developed, there will be greater or less risk. It strikes us as being impossible for any one to gauge or discriminate accurately the different degrees of disease, and tendency to disease, which exist in such great variety in different individuals afflicted with the same complaint. The utmost a medical man can do, we think, is to seek a conclusion from his past experience and obs. of the effect produced on persons similarly afflicted. But in applying it to the particular case before him, his estimate may turn out to be either right or wrong. The experience of any one man can but be limited, but it must of necessity be meagre indeed when he has to apply it to so many different kinds of disease and different stages of the same disease. The difficulty of dealing with such an experience, however, granting it to be sufficiently extensive, becomes in practice unavailable, for to be serviceable it should be tabulated and reduced to numbers. . . .

Under the 3rd head he says:

From what we have already shown, the reader will be prepared to learn that in the majority of cases where extra prems. are required, the rate at which an office will accept a life will seldom be taken by any two offices on the same terms. . . . The various estimates that different cos. entertain of particular lives is the result of the diversity of opinion among medical men with reference to a given case in which they have all the same means of judging. . . . Numerous cases are daily occurring in which this difference of opinion is taking place, and consequently retarding the progress of life assu. . . . It is impossible by the present system to attain to uniformity.

We now arrive at the proposed remedy: "A plan that would make it absolutely certain that the extra prems. would be fully paid up in the event of death occurring before a given age; and a plan that would make it also certain that the extra prems. would be cancelled in the event of surviving a given age":

To show how such a method can be carried out, let us suppose a number of individuals desirous of forming themselves into a so. for the purpose of assu. their lives. Preparatory to their becoming members, they of course agree that each will submit to a medical examination. The results of the examination are, that three-fourths of the intending members are passed as first-class lives, and the remaining fourth are rejected as being diseased or doubtful lives. But, that they may not be excluded from the benefits of L. assu., the so. compound with them, and submit the following new scheme. *The ordinary tabular rate, at the proposer's actual age, will be adhered to, and, instead of the usual ann. extra prem., payable during the whole of life, a single prem. shall be made a temporary charge on the pol. of those applicants for assu. who are considered by the medical advisers below the average standard of health. The single prem. guaranteed to the co. shall only be deducted from the sum assured, in the event of the pol. becoming a claim within a limited number of years, agreed on between the office and the assured.*

[We quote this from the 2nd ed. of the pamph. Its phraseology differs slightly from that of the first ed.] The plan of working out the scheme is then given in some detail:

The first step in the process is to ascertain the time in which the prem., at the proposer's real age, will amount to the sum assured, when invested at 4 p.c. compound int. This being known, we proceed to find, (1) the present value of a temporary assu. to continue until the pol. becomes paid up; (2) to find the present value of a deferred assu. on the same life after the pol. has been paid up. But a temporary and a deferred assu., as we have already seen, is equal to an assu. over the whole life. And that would be the case in this instance if we were to assu. a uniform sum over the temporary and deferred periods. But this we are not doing; for the plan is that a certain deduction shall be made if the pol. becomes a claim during the time that the temporary assu. continues. The sum assu. therefore, if the claim arise during the temporary period, is less than the full amount of the pol. But immediately the life enters upon the deferred part of the assu.—that is, the remainder of life after

the pol. is paid up—the assured becomes entitled to the full amount of his pol. The sum, subject to deduction during the temporary period, is arrived at by the process of calculation we have described. The resulting amount, when reduced to ann. prem., is in exact proportion to the number of years added to the life, and is the equivalent compensation to the co. for the ann. extra prem. payable during the whole of life under the old system. It must be kept in view, however, that the number of years added to a life when the pol. is taken out is supposed to be the same under both systems. In fact the new method does not in any way interfere with the recommendation of the medical officer of a co., as to the number of years to be added to a life, or the rate at which the board of directors finally agree to accept the case.

The method here proposed is simply an expedient for adjusting and re-arranging the extra prem., “so that they may subsequently be levied more equitably, and borne by those who are more justly liable for the payment.” To the co. the money consideration or present value of the extra prem. to be received under both systems is identical. This is made clear as follows :

If we take the difference between the single prem. for assu. of a given sum, say £100, at the increased and real age of the assured, and apply this sum as a single prem. to assure a certain sum at his increased age during the time in which the pol. will be paid up with int., such sum will truly represent the deduction that will be made from his pol. in the event of his dying at any time during the period named ; from which it is clear that an office will derive equal advantage under the new system as under the old. This object, however, is not to produce more profit to the co., but to correct the errors of the orig. assessment of the extra prem. as regards individual interests. This, we think, is obtained by requiring that the full amount of the extra prem. orig. charged shall be paid by those whose pol. become early claims, in order that those who have turned out better lives than was anticipated shall be wholly exempt from the payment of any add. prem.

Then follows a series of examples—the prem. employed being that deduced from *English T. No. 2*, with 20 p.c. uniform loading. The following T. contains a summary of the examples, when a 5 years’ addition has been made :

Real age of the assured.	Ann. extra prem. payable through life under the old method.	Amount to be deducted from sum assu. if pol. becomes a claim	within the under-mentioned number of years. But if the life survive the same number of years, no deduction will be made.	The number of ann. prem. at the assured’s real age, which is equivalent to the amount deducted.	Age of assured when pol. is free from deduction.
	£ s. d.	£ s. d.			
20	0 4 11	15 15 4	29	8.29	49
35	0 9 6	16 18 8	22	6.00	57
45	0 16 1	17 7 7	18	4.45	63
60	2 0 6	14 8 4	11	1.96	71

When a 20 years’ add. has been made, the figures would read as follows :

	£ s. d.	£ s. d.			
20	1 7 11	46 0 0	29	24.19	49
30	2 5 3	46 1 6	25	18.83	55
40	4 1 2	44 3 9	20	13.41	60
50	7 8 3	39 15 10	16	8.45	66

The advantages of the scheme are set forth (*inter alia*) as follows :

Those who take out pol. at an increased rate of prem. have generally great confidence in their own lives ; they believe, notwithstanding their tendency to some disease, that the precautions they adopt and the regular lives they lead will go far not only to delay the development of active disease, but procure for them the enjoyment of a “green old age.” Those therefore who are liable for extra prem. under the new scheme are offered a prem. for leading careful *sober lives*. The endeavour to prolong life, however, is just taken at what it is worth. This, notwithstanding, is a fact of importance to those who have to pay an extra price for their assu., on account not of any organic disease, but solely of the certain consequences of a recurrence to irregular habits, and against that contingency an assu. so. can have no guarantee. To such the new scheme presents the inducement of a money consideration, for they will have a greater chance of leaving more money at their death, if by a steady and sober life they outwit the doctor’s anticipations, and enjoy their average expect. of life.

Another feature of the scheme, and one which we think will materially promote the extension of L. assu., arises from the fact of there being no payment demanded for extra prem. during the lifetime of the assured. . . . Cases are constantly occurring where proposals are not completed from the fact of the extra prem. being so high as to render the payment beyond the resources of the intending assurer, or if not beyond his means, further than his inclination will yield, or his sense of justice submit to, when without a prospect of ultimate relief. . . .

It may not be out of place to observe that another practical advantage can be obtained from the new scheme in connexion with the allocation of profits. For the ascertained share to be appropriated to a pol.-holder could be legitimately applied to the liq. of the amount to be deducted in case of death before the age agreed on. . . . This, however, is a matter for the consideration of the offices. . . .

Our final inquiry resolves itself into an examination of the peculiar and special advantage to the pol.-holder under the new scheme. In what does it consist ? viz. : In this, that it affords an opportunity of being ultimately exempted from the payment of extra prem. in any shape whatever, either annually or by deduction from his pol. Instead of arbitrarily deciding the point at the time the pol. is taken out, and making the assured liable for the payment of an ann. extra prem. during the whole of life, the new system provides that the life shall first be proved, and the correctness of the medical estimate put to the test ; and the extra prem. charged or remitted according as the assured shall turn out, as it is commonly called, a good or a bad life. . . .

We have rarely seen a proposition worked out in a more careful and painstaking manner. Logically it hardly accomplishes all that is claimed for it; but as a rational solution of a difficult question it has much in its favour; and although the office with which the method was first associated has long since passed away, Mr. Black's method continues to be applied by other offices, and we understand with satisfactory results.

Dr. A. P. Stewart, M.D., adds, by way of supplement to Mr. Black's pamphlet, a paper, *Obs. on the Characteristics of Assurable and Non-Assurable Lives*. He takes up the question: "Under what circumstances, if any, is a diseased life assurable?" And replies as follows:

In the present state of our knowledge it is impossible to lay down any precise rules in regard to the acceptance of lives actually diseased. It is only by the accumulation of the recorded experience of many life offices, extending over a long term of years, that we can hope to arrive at any general results. When many reports characterized by the accuracy and distinguished ability of those drawn up by the *Scottish Widows' Fund* and *Standard Life* offices, by Drs. Begbie and Christison, shall have been issued by other long-established cos., we may hope for some clearer light to guide our decisions, which are meanwhile little better than guesses at truth, and often very wide of the mark. Each separate case must be judged on its own merits or demerits, and where opinion has so much to do with the result, each one of a dozen medical examiners may come to a different conclusion on a given case.

We shall recur to his obs. under MEDICAL SELECTION, and other heads.

In the case of *Manby v. Gresham L.*, before our Equity Courts in 1861, the facts were as follow:—A pol. on the life of another was effected with the Co. in 1849. It was said of the life insured, in the proposal form, "that he formerly was not so steady as he ought to be, but was latterly much more steady and temperate." The Co. put him up 10 years; but the prosp. of the Co. in force at the time of the ins. stated that the life might from time to time be re-examined, and the "So. being satisfied" of the removal of the cause of charging the extra prem. would reduce it. The insured went to Melbourne after the pol. was effected, and joined the police force, but he subsequently became a clerk at the Town Hall there. The holder of the pol. applied for a re-examination; the Co. replied that it had no agency or medical examiner in Melbourne, but ultimately agreed to consider any medical certificate sent. It did consider such a certificate, but refused to make any abatement in the prem. On a bill filed, it was *held*, on demurrer, that the directors having *bonâ fide* exercised their discretion, and refused to reduce the prem., this Court could not interfere in favour of the plaintiff, though the life ins. had become thoroughly healthy and sound.

In 1862 Mr. Samuel Younger contributed to the *Assu. Mag.* [vol. x. p. 268] a paper entitled: *A plan for making conditional the payment of extra prem. in the case of a life supposed to be diseased, or more than ordinarily hazardous*. The author says:

The practice of charging a higher prem. corresponding to an advanced age, which has hitherto generally been adopted, is of course open to the double objection, that the judgment of the medical officer may have been at fault in placing the life in the second or third class at all, and supposing he were right in his decision thus far, that the prem. at which he has assessed the risk may not be in accordance with its precise magnitude. It is true that in after years reductions may be made if the person's health improve; but this plan is not without trouble both to the office and the assured, and it has the further disadvantage of leaving the latter in a state of uncertainty as to what his future premiums may be.

He indorses entirely the principle of Mr. Black as already described, and says:

My object now is to suggest what appears to be a fair and sufficient amount for this deduction, and to assign the length of period over which it should extend. The method made use of by Mr. Black in his investigation of these results is in accordance with his hypothesis; but as I am inclined to think that other assumptions than those which he employs may be safely made, by means of which the rev. deductions in different cases become more consistent in their relative magnitudes, and often considerably lessened in their actual amount as compared with Mr. Black's figures, I would submit the following points for consideration.

In making an add. to the life, the medical officer may, and doubtless does, not unfrequently commit an error; but as the mathematical prob. of his doing so cannot be determined, our object, in an investigation like the present, must be to introduce hypotheses of such a nature as to counterbalance, to the best of our judgment, the possible error so committed. The first assumption I propose to make is, that the decision of the medical officer, if incorrect, is far more likely to be in favour of the co. than otherwise. There cannot be a doubt that an add. is frequently made to the age when none at all is needed; this must often be the case when the cause assigned is "family hist.," "hernia," and such like. It cannot always follow, for instance, that the life of a man whose father died of consumption is extra-hazardous on that account: for if all the circumstances could be known, it might sometimes prove that the disease had its origin long after the birth of the son, and was the consequence of exposure, accident, or unhealthy occupation; yet such a case rarely escapes the charge of some add. prem. The task, however, of discussing in detail the many cases in which an add. is prob. made in error would be endless; but a very great number of instances will readily occur, to those engaged in the bus. of life assu., in support of the reasonable assumption that the medical error, when it exists, is far often more in favour of the co. than against it. I would suggest, therefore, that the extra prem. proposed to be charged should be left unpaid until the expiration of the period termed the *expec. of life*: on condition that a certain deduction, agreed upon beforehand, be made from the sum assured if death happen in that period; no deduction to be made if the life fail after that term.

In theory, of course, it does not follow that an individual is an average life because he survives the term here spoken of; but it must be remembered we are dealing with a case which theory alone cannot decide in all its bearings, and under the circumstances the test seems to be a fair one. It should be distinctly understood that I propose to assume as a *fundamental truth*, that the fact of a person whose life was considered an extra-hazardous one living to the end of the "expec." period is complete evidence that the medical opinion was wrong, and that no add. prem. was necessary. This being premised, we may reason in the following manner in estimating the amount of the rev. deduction. If death takes place during the first year, the co. should be entitled to deduct one extra prem. and a year's interest upon it, to place itself in the same position as if the add. prem. had been paid in the

ordinary course. If death happen in the second year, the deduction should be two extra prem., together with int., and so on. This calculation I carry to the end of the period of "expect," and after finding the present value of these several possible deductions, I treat the total as a single prem. for an assu. for the whole term of life, and the amount of such assu. I take to be the deduction which should be specified in the pol.

It will be seen that another departure is here made from pure theory, inasmuch as theory would require all the possible deductions to the end of life to be taken into account, instead of those only during the "expect.;" but after carefully weighing all the circumstances, I am inclined to believe that the plan above suggested will give a perfectly safe result for office use.

In the same vol. of the *Assu. Mag.* are letters from Mr. Peter Gray, Mr. H. Ambrose Smith, and Mr. W. E. Braybrook, involving criticism upon and dissent from Mr. Younger's proposal. Mr. Gray says, with some emphasis :

It is maintainable that no amount of *survivalance* on the part of a particular life, although extending to the utmost limit of human existence, will suffice to prove that there was not, *at the date of the medical rep.*, sufficient ground for the relegation of that life to a class of a greater age than the age assigned by the date of its birth. If, in consequence of increased care (which is frequently engendered by delicacy of constitution), or from any other cause, the life in question should, contrary to anticipation, attain a good old age, the case must be considered as just one of those, the decision of which in favour of the office enables it to meet the claims arising on account of those that are decided against it. Having stood the risk of an adverse decision, the office must not be called upon to surrender the consideration in respect of which it undertook that risk.

Mr. Gray also objects on scientific grounds.

Mr. Ambrose Smith considers that Mr. Younger "rather needlessly complicates a comparatively simple matter," and proceeds to state the grounds for this opinion.

Mr. Braybrook objects not only to Mr. Younger's proposal, but also to that of Mr. Black. He says :

It appears to me, however, that there is a fundamental error of principle which renders both of the proposed plans unsound, and which the palliative considerations set forth by Mr. Younger do not affect. *The payment for a contingency ought never to depend on the issue of the event.* An ordinary assu. on a healthy life, it has often been pointed out, is a transaction in the nature of a wager—morally harmless, it is true; but still a wager upon the happening of an event unknown to either party. If the life survive the year of the payment of the prem., the co. stands to win; if it die, the co. will lose; and as the latter event is antecedently less prob., the co. gives odds to the assured. But as soon as the year has expired, the transaction is closed: the assured cannot say, "The life has survived, return me my money," nor can the co., if the death has happened, say, "We will pay you back what we have received from you, and no more." It is true the co. has entered simultaneously upon many other similar transactions, and expects to be neither a loser nor a gainer on the whole extent of them; but that is its own risk, not the risk of the assured. The proportion of the prem. to the sum assured—that is, the amount of the odds given by the co.—is settled according to what are erroneously termed the "laws" of mort., which are really only the results of past experience, as extensive as we can collect. Those "laws" promise no certainty of life equivalent to the odds given, but merely enable the co. to say at what rate they can afford to run the risk.

An assu. upon an invalid life differs in no respect from an ordinary assu., except that the rate of odds the co. can afford to give is matter of more anxious calculation. Whatever the rate may be, when fixed upon an antecedent investigation into the case, it must not be disturbed when the contin. is at an end. If upon an individual case, or any number of cases, the co. finds the transaction result in a loss, they must abide by it; if they have made profit, the profit is legitimate, having regard to the antecedently equivalent risk of loss. There cannot be an "error" or "mistake" for subsequent remedy, in the estimate put originally upon the risk.

I see Mr. Younger admits that he has "departed from theory"; but I think that the experience of all offices which have entertained invalid assu. would show that such departures on the wrong side are very dangerous. It is a most hazardous class of bus., and the co. requires every practical and theoretical barrier against loss that can be devised. Every plan which charges a debt upon the pol., to be wiped off at a future day if the death has not intervened, whether the debt be estimated on the careful method of Mr. Younger, or by the more empirical modes adopted by the offices which advertise the system, deprives the co. of the chance of profit which alone can compensate them for the concurrent chance of loss; and enables the assured in effect to say to the co., "Heads, I win; tails, you lose." Indeed, any debt whatever upon a pol. is unsound, and subversive of the principles of assu.

He makes the following further practical obs. :

It may be worth while to add, as collateral to the subject, that what has been said does not affect the question of returning a bonus to the assured out of the resulting profits of a series of transactions, if such profit has arisen from prudent investment, gain of int. beyond that involved in the T., economy in expenditure, or other like causes. But bonus ought never to be divided out of profit supposed to arise from a more favourable past experience than that for which the rates of prem. have provided; and those cos. who boast that their claims have been less than the expected amount, unless they retain in their hands the money so saved, are congratulating themselves upon what is really a presage of future disaster as far as the pol. under obs. are concerned. [SURPLUS.]

In 1862 Dr. Fleming, M.D., pub., *Medical Statistics of Life Assu.; being an Inquiry into the Causes of Death among the Members of the Scottish Amicable from 1826 to 1860; and a comparative analysis of the Diseases which have proved fatal among the assu. in several Societies, and among the general pop. of England.* There is nothing bearing specially upon the subject of ins. diseased lives as a class; and the statistics it contains will be best noticed under the heads of the specific diseases of which it treats. [SCOTTISH AMICABLE, MORT. EXPERIENCE OF.]

In 1862 the *City Assu. Co.* was founded, and its prosp. set out the features of Black's scheme in a very attractive form, supported by the following argument :

Those practically acquainted with the working of a life office must be aware how large a proportion of the proposals made are upon lives not altogether unexceptionable, and where an extra prem. is fairly chargeable. They may not be cases of absolute disease; but where the future is not altogether free from apprehension, or where the party, while by no means an uninsurable life, is, from some cause more or less important, below the average standard. How often is it that the proposer, feeling himself in good health, and perchance supported in this view by the opinion of his medical adviser—given however generally and not with any particular reference to the object of ins.—regards himself as in all respects a first-class life; although upon examination, or an investigation of family hist., he

may not be found so. Yet invariable is the reluctance to pay an extra prem., arising from the conviction that there is nothing to warrant it. In fact too often the intended family provision is in consequence either not made at all, or if the required prem. be paid, it is a source of constant dissatisfaction.

In cases of *diseased* lives, where of course the fact must be more or less known to the proposer, there is not the same ground for complaint; but the add. is oftentimes so heavy as to preclude the possibility of the assu. being for more than a nominal amount, and when once the contract is made, it so continues throughout life, whether the party has outrun the physical objection or not.

In 1863 the *Hercules* (No. 2) perfected a scheme for the insurance of diseased lives, of which the following is an outline:—A second-class life will be assu. at the ordin. tabular rates, the expc. of living being divided into four equal portions. Should a pol.-holder for £1000 die during the first portion of the expectancy, the Co. would engage to pay £200 of the sum ins.; if he should die in the 2nd, £400; the 3rd, £600; and should he die during the fourth portion of the expectancy, the Co. would engage to pay £800 of the sum ins. And should the life survive the full expc., the full sum of £1000 would be paid. This scheme was perfected by Mr. Shrubbs, the then Sec. of the Co.

In 1865 the mort. experience of the *Metropolitan L.* from 1835 to 1864, both inclusive, was pub. Under T. D., "different classes of assu.," we find 555 enumerated as diseased lives. The average number of years they had been under obs. was stated to be 11·6. The total deaths had been 99; giving a per-centage mort. on the years of life exposed to risk of 1·54. The number of deaths at like ages to be expected according to *Experience T. No. 1*, was 112; the actual mort. experienced had therefore been 88·4 p.c. of the expected mort.; while in the "healthy life" branch it had only been 79·1 p.c. It was explained that under "diseased lives" had only been classified those who "either for gout, hernia, impaired health, or tendency to disease, have been assu. at an increase of their natural ages." The average add. had been 3½ years. This had been "entirely disregarded in determining the mort. of this class."

In 1868 Mr. Makeham addressed a communication to the editor of the *Assu. Mag.* [vol. xiv. p. 159], *On the adjustment of prems. for L. Assu. in reference to Extra Risks.* [EXTRA PREMS.]

In 1868 the *British Alliance* announced a scheme for the ins. of invalid lives, which was clearly based upon Black's plan.

In 1868 the mort. experience of the *Gresham L.*, extending over the first 1000 lives which had become claims, and covering its experience for the first 18 years of its existence down to the year 1866, was pub. by the assistant medical officer of the Co., Mr. A. H. Smee. The report does not throw much light on the special question of the ins. of diseased lives; indeed, the following T. is the only one bearing upon the subject. It shows that out of 1000 deaths from "all causes," 206 took place among the diseased lives, *i.e.* "English lives at extra rates," from the following specific causes:

Cause of Death.	Ages Under							Total.
	20	30	40	50	60	70	80	
Zymotic	2	4	5	6	.....	1	18
Uncertain Seat	1	3	5	6	2	1	18
Tubercular	10	15	8	2	.....	.....	35
Brain	4	5	8	10	6	3	36
Respiratory.....	5	11	5	5	10	5	41
Circulatory.....	3	5	4	5	1	18
Digestive.....	4	4	3	4	1	16
Urinary.....	6	1	3	1	11
Generative.....	1	.....	1
Unknown.....	1	.....	1
Age and Debility.....	1	1	5	7
Violent Deaths.....	2	1	.....	4
	22	46	46	40	34	18	206	

The further experience of the Co. was pub. in 1871, which see.

The *Bristol and London*, founded 1869, ins. diseased lives on Black's plan.

The most important contribution, in many respects, made to our stock of knowledge concerning the mort. of diseased lives insured in British offices is that contained in the *Mort. Experience of Life Assu. Cos. collected by the Inst. of Act.*, and pub. in 1869; supplemented as it is by the separate obs. of the Scottish offices. The number of "diseased lives"—male and female—embraced in the obs. is 11,146, who had lived through 101,695 years of life. Of these there had died 2456, had been discontinued 3365, and were in existence on 31st December, 1863, nearly one-half of the whole, namely, 5325. In these numbers were included the experience of the *Clerical, Medical, and General*, which had, as we have seen, made the ins. of diseased lives a special feature for a period of forty years at the time the data was collected, viz. up to the end of 1863. The other offices con-

tributing their experience were mostly such as might be considered very careful regarding the acceptance of lives of this class, and had not made any "feature" of so doing.

The report of the Committee says :

In regard to the diseased lives, male and female, the deaths are too few in each separate year of ins. to give very trustworthy results. *It is evident, however, from the excessive mort. in the first and second year, which under the age of 60 is generally about double that of healthy male lives, and also by comparison of the rates at 5 years and upwards with the total, that the benefit of selection is very slight indeed, and generally disappears entirely by the third or fourth year.*

The total rates of mort. as compared with healthy males and females, are given in the annexed Table.

The mort. amongst diseased lives, at all ages under 65, therefore exceeds that of healthy lives by 30 p.c., and at the younger ages is nearly 70 p.c. in excess.

The following T. shows the force of mort., and also the expect. of life, by way of comparison between the healthy males and females of the new mort. experience [Experience T. No. 2] and the diseased lives; the Carlisle and old experience being added also for purposes of comparison.

LIVING OUT OF 10,000 ENTERING AT AGE 10.					EXPECTATION OF LIFE.			
Ages.	Healthy Male and Female.	Diseased Male and Female.	Carlisle	17 Offices Experience.	Healthy Male and Female.	Diseased Male and Female.	Carlisle.	17 Offices Experience.
10	10,000	10,000	10,000	10,000	49'9	45'6	48'8	48'4
20	9554	9679	9427	9327	42'0	36'8	41'5	41'5
30	8984	8548	8734	8629	34'8	31'0	34'3	34'4
40	8128	7544	7856	7865	27'6	24'5	27'6	27'3
50	7183	6426	6806	6952	20'5	18'3	21'1	20'2
60	5847	4832	5639	5597	14'0	12'6	14'3	13'8
70	3805	2785	3717	3584	8'7	8'2	9'2	8'5
80	1411	898	1475	1329	4'9	5'0	5'5	4'9
90	159	57	220	132	2'7	4'1	3'3	2'1

It is pointed out that "the T. for female lives and that for diseased lives may also be liable to fluctuations from the relatively small number of obs."

At the age of 40 the diseased lives and the healthy female lives show nearly the same decrement, 7544 of the former, and 7574 of the latter, remaining against 8223 healthy males out of 10,000 assumed to enter at age 10. But after that age the diseased lives rapidly diminish by death, being reduced to 2785 at age 70.

It is important, in a practical point of view, to note the mort. results among diseased lives in the early years of ins.; and the following T., abstracted from the more complete T. in the report, furnishes the means.

DISEASED LIVES—MALE AND FEMALE.—Annual mort. per cent. in years of Ins.

Ages.	0	1	2	3	4	Under 5	5 and Upwards.	Total.
20 to 24	1'22	1'22	1'78	58	1'06	1'26	76	1'19
25 „ 29	86	1'38	1'49	93	1'08	1'20	1'29	1'21
30 „ 34	86	1'03	1'15	1'20	1'23	1'10	1'25	1'15
35 „ 39	94	1'42	1'60	1'24	1'09	1'29	1'36	1'32
40 „ 44	1'49	1'67	1'08	1'57	91	1'35	1'46	1'41
45 „ 49	86	1'92	1'76	2'15	1'83	1'78	1'77	1'77
50 „ 54	1'33	2'19	2'99	2'36	2'01	2'26	2'67	2'54
55 „ 59	2'56	2'68	3'12	2'98	3'59	3'02	3'07	3'05
60 „ 64	1'54	2'40	3'38	4'46	3'84	3'30	4'89	4'49
65 „ 69	1'21	3'16	4'79	7'69	6'90	5'29	6'29	6'09
70 „ 74	11'11	5'03	2'63	5'00	9'25	6'15	8'17	7'91

The last three columns show very regular progressive results. The fluctuations in the

yearly columns may be in some measure due to the small numbers under observation. To elucidate this point we add the following :

Number of Deaths on which the preceding per-centages are computed.

Ages.	0	1	2	3	4	Under 5	5 and Upwards.	Total.
20 to 24	5	7	6	1	1	20	2	22
25 „ 29	7	18	15	7	6	53	13	66
30 „ 34	8	18	17	15	13	71	42	113
35 „ 39	8	22	22	16	13	81	83	164
40 „ 44	11	24	14	19	10	78	112	190
45 „ 49	5	22	19	21	17	84	148	232
50 „ 54	6	19	24	18	15	82	212	294
55 „ 59	8	17	19	18	20	82	210	292
60 „ 64	3	10	14	18	15	60	266	326
65 „ 69	1	6	10	16	15	48	237	285
70 „ 74	4	4	2	4	8	22	195	217

The following T. is compiled from the T. given on pp. 247, 279, and 281 of the vol. pub. by the Committee ; and embodies all that we deem material in regard to the mort. and expec. of diseased lives.

DISEASED LIVES—MALE AND FEMALE COMBINED.

Summary of results from *New Experience* investigation, 1869.

Age.	Exposed to risk.	Died.	Ratio of 10,000.				Expectation.
			Probability of dying in a year.	Probability of living a year.	Living.	Dying.	
0	...	...	...	...	...	...	55'56
1	1'0	...	...	...	...	...	54'56
2	2'5	...	...	...	...	...	53'56
3	3'5	...	...	...	...	...	52'56
4	4'5	...	...	...	...	...	51'56
5	7'0	...	...	...	...	...	50'56
6	11'0	...	...	...	...	...	49'56
7	17'5	...	...	...	...	...	58'56
8	22'5	...	...	...	...	...	47'56
9	25'0	...	...	...	...	...	46'56
10	29'5	...	...	1'00000	10,000	...	45'56
11	36'5	...	...	1'00000	10,000	...	44'56
12	44'5	...	...	1'00000	10,000	...	43'56
13	49'5	...	...	1'00000	10,000	...	42'56
14	53'5	...	...	1'00000	10,000	...	41'56
15	61'0	...	...	1'00000	10,000	...	40'56
16	74'0	1	'01351	'98649	10,000	135	39'56
17	91'5	...	'00000	1'00000	9865	0	39'09
18	115'0	...	'00000	1'00000	9865	0	38'09
19	159'0	3	'01887	'98113	9865	186	37'09
20	201'5	2	'00993	'99007	9679	96	36'80
21	253'0	4	'01581	'98419	9583	152	36'16
22	342'0	4	'01170	'98830	9431	110	35'73
23	463'0	9	'01944	'98056	9321	181	35'15
24	588'0	3	'00510	'99490	9140	47	34'84
25	753'5	10	'01327	'98673	9093	121	34'01
26	906'0	11	'01214	'98786	8972	108	33'47
27	1073'0	16	'01491	'98509	8864	132	32'87
28	1256'0	11	'00876	'99124	8732	77	32'36
29	1450'5	18	'01241	'98759	8655	107	31'64
30	1656'0	23	'01389	'98611	8548	119	31'03
31	1811'0	21	'01160	'98840	8429	98	30'46
32	1986'0	21	'01057	'98943	8331	88	29'81
33	2127'0	22	'01034	'98966	8243	85	29'13
34	2221'5	26	'01170	'98830	8158	95	28'43
35	2328'0	30	'01289	'98711	8063	104	27'76
36	2413'0	25	'01450	'98550	7959	115	27'11
37	2479'5	23	'00928	'99072	7844	73	26'51
38	2546'0	38	'01493	'98507	7771	116	25'75

DISEASED AND IMPAIRED LIVES.

Age.	Exposed to risk.	Died.	Ratio of 10,000.				Expectation.
			Probability of dying in a year.	Probability of living a year.	Living.	Dying.	
39	2617'5	38	'01452	'98548	7655	111	25'13
40	2651'5	36	'01358	'98642	7544	103	24'49
41	2687'0	37	'01377	'98623	7441	102	23'82
42	2719'0	42	'01545	'98455	7339	114	23'15
43	2701'0	36	'01333	'98607	7225	96	22'51
44	2707'0	39	'01441	'98559	7129	103	21'80
45	2703'5	56	'02071	'97929	7026	145	21'11
46	2662'5	40	'01502	'98498	6881	103	20'95
47	2607'5	40	'01534	'98466	6778	104	20'26
48	2583'5	46	'01781	'98219	6674	119	19'57
49	2545'0	50	'01965	'98035	6555	129	18'92
50	2473'0	61	'02467	'97533	6426	159	18'29
51	2389'0	54	'02260	'97740	6267	141	17'73
52	2301'5	52	'02259	'97741	6126	139	17'13
53	2249'5	57	'02534	'97466	5987	151	16'52
54	2173'0	70	'03221	'96779	5836	188	15'93
55	2087'0	53	'02540	'97460	5648	144	15'45
56	2006'5	49	'02442	'97558	5504	134	14'84
57	1927'5	74	'03839	'96161	5370	206	14'20
58	1808'5	64	'03539	'96461	5164	183	13'74
59	1738'0	52	'02992	'97008	4981	149	13'23
60	1671'5	75	'04487	'95513	4832	217	12'62
61	1548'0	52	'03359	'96641	4615	155	12'19
62	1453'5	62	'04266	'95734	4460	190	11'60
63	1347'5	66	'04898	'95102	4270	209	11'09
64	1236'0	71	'05744	'94256	4061	234	10'64
65	1122'0	64	'05704	'94296	3827	218	10'26
66	1019'0	55	'05397	'94603	3609	195	9'85
67	928'0	60	'06466	'93534	3414	220	9'38
68	845'0	53	'06272	'93728	3194	201	8'99
69	763'5	53	'06942	'93058	2993	208	8'56
70	678'5	43	'06338	'93662	2785	176	8'16
71	612'0	41	'06699	'93301	2609	175	7'67
72	551'0	44	'07985	'92015	2434	194	7'18
73	482'5	39	'08083	'91917	2240	181	6'77
74	421'0	50	'11876	'88124	2059	245	6'32
75	343'0	43	'12536	'87464	1814	227	6'10
76	290'0	37	'12759	'87241	1587	203	5'90
77	240'0	28	'11667	'88333	1384	161	5'69
78	192'0	28	'14583	'85417	1223	179	5'38
79	149'5	21	'14047	'85953	1044	146	5'21
80	123'5	15	'12146	'87854	898	109	4'98
81	104'0	19	'18269	'81731	789	144	4'60
82	78'5	11	'14013	'85937	645	91	4'52
83	57'0	5	'08772	'91228	554	48	4'17
84	51'0	7	'13725	'86275	506	70	3'52
85	43'0	11	'25581	'74419	436	111	3'01
86	31'0	8	'25806	'74194	325	84	2'87
87	21'5	8	'37209	'62791	241	90	2'69
88	12'5	3	'24000	'76000	151	36	2'99
89	8'0	4	'50000	'50000	115	58	2'78
90	4'0	...	'00000	1'00000	57	0	4'05
91	4'0	1	'25000	'75000	57	14	3'05
92	2'5	1	'40000	'60000	43	17	2'90
93	1'0	...	'00000	1'00000	26	0	3'50
94	1'0	...	'00000	1'00000	26	0	2'50
95	1'0	...	'00000	1'00000	26	0	1'50
96	1'0	1	1'00000	'00000	26	26	'50

The Rep. from which the preceding details are drawn was submitted, before pub., to the Inst. of Act., and a discussion was raised thereon. The following speakers dealt with the subject of diseased lives.

Mr. A. H. Bailey said :

As regards diseased lives, those upon which an extra prem. has been charged for any disease or ten-

dency to disease, we find that the mort. is so much in excess of that of the healthy lives, that anything like a small or even moderate add. to the prem. is of very little avail. Take, for instance, the age 25 to 29; whilst among healthy lives the mort. is 73 in 10,000, amongst diseased it is 121. Among other information in which the old experience [Experience T. No. 1] was wanting, but which the materials now collected will furnish, is the mort. at the oldest ages, and also the effect of selection—a matter of great interest to us all, and, to my mind, the most interesting part of the present results. When these tables come to be pub., it will be found that as far as the healthy lives are concerned, both for male and female, the mort. in quinquennial periods of age for every year of assu. is given separately for each of the first 10 years of assu., also for the first 5 years and the subsequent period, also for the first 10 years and the subsequent period; and I have been very much struck with finding how very remarkable the effect of selection is in the first three or four years, and how very soon it seems to pass away. There is a curious result about the fourth year, when the mort. seems to be in excess, for which I am quite unable to account, but speaking broadly and generally, the facts show that the effect of selection is very noticeable for the first three or four years, but is not very marked after that. *In the diseased lives the mort. is more uniform throughout.* The effect of selection, as might be expected, is considerably less amongst diseased lives than amongst healthy lives; but the results do not show what I think was at one time anticipated, that the diseased lives, like port wine, improve by keeping. We have some of us found from experience that the mort. amongst diseased lives is heavy in early years; and it was hoped that that would be compensated for by an improved mort. in after years of assu. But that is not the case.

Mr. F. Hendriks said:

I doubt whether we can apply these particular tables with any certainty to any practical use, because we know that these lives were admittedly bad, and the question is whether they have turned out better or worse than the addition we have made to them? I regret to say we have not here the chance of seeing in these particular obs. upon that class any useful information.

Mr. Thomas Carr, after the discussion, wrote to the *Ins. Record*:

I cannot understand how any opinion on the subject alluded to could be duly formed, except after an investigation of the mort. among diseased lives, made separately for the successive stages of duration of the policies, so as to afford the means of comparing, at any given age, the mort. among lives on which the pol. have been in force a few years with that among lives whose pol. are of older date. No such investigation has, however, been made before the present one, to my knowledge. The experience of the *Clerical, Medical, and General* office [already noticed] does not supply the means for such a comparison as I have alluded to. Instances of diseased lives attaining great ages are by no means unknown, and if from such instances, and from perhaps ascertaining that the mort. among diseased lives was heavy during the earlier years of assu., any persons have gone on, not merely to hope, but to decide favourably as to future and untried cases, I conceive this is not only a faulty process of reasoning, but a proceeding to which the words of Lord Bacon will apply—"Vague and arbitrary experience is mere groping in the dark."

The *Report of the Scottish Joint Committee appointed to collect the Experience of the Scottish Life Assu. Offices* to 31 December, 1863, was also pub. in 1869, and from it we take the following:

The rate of mort. experienced among lives diseased at their first assu. has also been computed, and will be found in the accompanying tables (see No. cv.). The rate experienced over the whole healthy and diseased lives taken together is also given (No. cvi.). Viewing diseased lives as a separate class of risks, those which were diseased at a first and those diseased at a second or subsequent assu. may be combined, and the rate of mort. deducible from the combination may be viewed as the true rate among diseased lives. This rate is accordingly given in one of the following tables (No. cvii.).

It occurred to the committee that it would be useful to subdivide the whole class of diseased lives into separate sections, according to the nature of the deteriorating influence affecting the life, and they accordingly obtained supplementary returns from the several offices—

- (1) As to the amount of extra prem. charged, and consequently the increased age at which the life had been rated; and
- (2) As to the nature of the deteriorating element for which the extra prem. had been imposed.

In the previous tables under this head, the lives had been taken at their actual ages, but from the materials now obtained the committee were able to deduce the rate of mort. among diseased lives, on the assumption that they entered at the ages corresponding to the increased prems. charged. They were also able to divide the whole diseased lives into several classes corresponding to the nature of the deteriorating influence affecting the life, viz.—(see tables cxii.-cxvi. and tables I. and K. in printed appendix).

1. Unfavourable personal history, excluding gout and hernia	...	...	1325 lives.
2. Unfavourable family history	...	...	928 "
3. Gout	...	...	525 "
4. Hernia...	...	...	842 "

3620 lives.

Most of the T. referred to in the foregoing are unpub.: the references being to the MS. tables; but T. I. and K. are printed, and show the number exposed to the risk of mort., the number of deaths in each year, and the prob. of dying in one year at each age. Abstracts of these T. are given on the next page, 350.

Examples.—Table I.—The total number of "diseased lives" between their 39th and 40th birthdays was 875, of whom 12 died within the year, thus indicating for each life exposed to risk a ratio or probability of death of $\cdot 013714$. The sum of such ratios for the ages 35-39 = $\cdot 049925$, and for the ages 30-39 = $\cdot 106992$.

Table K.—Taking the lives at their *assumed* ages, corresponding to the increased prems. charged, the number between their 39th and 40th birthdays was 825.5, of whom 8 died within the year, thus indicating for each life exposed a ratio or probability of death of $\cdot 009691$. The sum of such ratios for the ages 35-39 = $\cdot 042716$, and for the ages 30-39 = $\cdot 098574$.

Another T. is given (Q.) (see page 351), showing the rates and causes of mort. among the diseased lives as compared with that experienced by the general pop. of Scotland in 1855-64. The T. applies to diseased lives, male and female.

DISEASED AND IMPAIRED LIVES.

TABLE I.—FIRST AND SUBSEQUENT ASSU. (ACTUAL AGES).

Age.	No. exposed to Risk of Mortality.	Deaths.	Probability of Dying in One Year.	Quinquennial Sum.	Decennial Sum.
Under 20	184.	1	·019048		
24	219.	0	·000000	·019927	
29	507.	6	·011834	·043801	·063728
34	785.	8	·010191	·057067	
39	875.	12	·013714	·049925	·106992
44	812.	8	·009852	·059540	
49	725.	13	·017931	·080544	·140084
54	571.	16	·028021	·119292	
59	422.	7	·016588	·132179	·251471
64	259.	12	·046332	·198933	
69	154·5	9	·058252	·265757	·464690
74	88.	11	·125000	·329906	
79	22·5	3	·133333	·686441	1·016347
84	10.	0	·000000	·268687	
89	3.	2	·666667	·1575000	1·843687
91	1.	1	1·000000		
Totals of entire T.	27583·5	545	(·019758)		

TABLE K.—FIRST AND SUBSEQUENT ASSU. (ASSUMED AGES).

Age.	No. exposed to Risk of Mortality.	Deaths.	Probability of Dying in One Year.	Quinquennial Sum.	Decennial Sum.
Under 20	62·5				
24	58.			·040816	
29	209·5	0	·000000	·032482	·073298
34	508·5	6	·011799	·055858	
39	825·5	8	·009691	·042716	·098574
44	921·5	16	·017363	·053900	
49	869.	14	·016110	·056315	·110215
54	732.	12	·016393	·083034	
59	558·5	15	·026858	·132967	·216001
64	390.	12	·030779	·149465	
69	230.	17	·073913	·250125	·399590
74	113.	6	·053097	·282213	
79	46·5	6	·129032	·451370	·733583
84	20.	4	·200000	·499671	
89	7.	1	·142857	·623917	1·123588
94	1.	0	·000000	1·233334	
Totals of entire T.	27583·5	545	(·019758)		

In 1870 Mr. James Meikle, of Edinburgh, in whose hands the responsibility of preparing the rep. on the Scotch mort. experience already noticed had been entrusted, read before the Royal So. in Edin. a paper which he had prepared by having "embraced the opportunity of making further investigation, comparison, and obs." upon the large mass of materials which necessarily fell into his hands in making the orig. investigation and rep. Of the merits of these combined publications it is impossible to speak too highly. They will be generally reviewed under SCOTTISH MORT. EXPERIENCE; and will be spoken of incidentally under many other heads. At present we have simply to note the add. obs. regarding diseased lives which are contained in this second production, pub. in elegant form in 1872.

At p. 49 we find the heading "rate of mort. of diseased lives," and are there told that "the lives not assured at ordin. rates, sometimes termed 'imperfect lives,' or 'diseased lives,' and numbering 3551, of whom 496 died, seem to have experienced a higher rate of mort. than would have been provided for them by the *Carlisle* or *Actuaries* T. (17 offices) as healthy lives." A tabular comparison of the actual and computed mort. is then given, by which it appears

That the mort. of the lives whose initial assu. were charged extra for personal infirmities, hereditary tendency to disease, or unfavourable family hist., is, overhead, about 9/7-10 p.c. greater than provided for by the *Carlisle* or *Actuaries* T. of mort. As the *Carlisle* is about 5/4-10 and the *Actuaries* 3/7-10 greater than the actual mort. experienced on healthy lives, it may be inferred that the number of deaths among diseased lives exceeds that among the healthy by about 13 to 15 p.c.

Table Q.—*Showing the Rates and Causes of Mort, as compared with that experienced by the general pop. of Scotland, 1854-64.*

	Rate per 1000, Specified Causes.	Healthy Lives, Rate per 1000, Specified Causes.	Scotland, Rate per 1000, "Persons."	Number of Deaths.					Rate per 1000, Specified Causes.								
				All Ages.		Unfavourable Personal History.	Unfavourable Family History.	Gout.	Hernia.	Total of these four Classes.	Unfavourable Personal History.	Unfavourable Family History.	Gout.	Hernia.	Total of these four Classes.		
				Age 20 and upwards.													
Total Deaths	545																
Whereof Specified Causes... ..	530																
DISEASES.																	
I. Zymotic Class	60	113	143	243	112	16	5	15	13	49	96	91	97	124	102		
II. Diseases of Uncertain Seat	38	72	55	39	62	8	3	19	6	36	48	55	123	57	75		
III. Tubercular Class	57	107	118	171	189	26	12	5	8	51	156	218	32	76	106		
IV. Brain and Nervous System	113	213	200	80	102	28	10	41	26	105	169	182	264	248	218		
V. Organs of Circulation	54	102	100	39	67	15	4	20	12	51	90	73	129	114	106		
VI. Respiratory Organs... ..	69	130	130	130	122	27	8	14	14	63	163	145	90	133	131		
VII. Organs of Digestion	64	121	123	78	71	21	12	12	12	57	128	218	78	114	119		
VIII. Urinary Organs	25	47	36	13	20	8	...	11	3	22	48	...	71	29	46		
IX. Organs of Generation ... ..	...	...	5	8	15	...	...	...	...	...	...	...	...	...	...	6	...
X. Organs of Locomotion	3	6	4	6	8	1	...	2	...	3	6	...	13	...	4	...	...
XI. Skin, etc... ..	2	4	3	1	1	...	...	2	...	2	...	...	13	...	...	...	...
XII. Malformation ... ..	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...
XIII. Premature Debility... ..	...	...	...	46	...	...	...	...	...	...	...	...	...	...	...	...	...
XIV. Atrophy	3	6	5	9	7	1	...	2	...	...	6	...	13	...	...	6	...
XV. Age	25	47	28	99	179	6	...	9	8	23	36	...	58	76	48	...	...
XVI. Sudden Deaths	1	2	1	2	3	...	...	...	1	1	...	...	...	10	2	...	...
XVII. Violent Deaths	16	30	49	34	42	9	1	3	2	15	54	18	19	19	31	...	...
XVIII. Not Specified	15	...	...	...	...	2	...	5	3	10	...	...	...	...	...	...	...
Sums... ..	545	1000	1000	1000	1000	168	55	160	108	491	1000	1000	1000	1000	1000	1000	1000

It will be remembered that the results of the Scotch obs. are included in the general results of the first rep. already noticed under this date.

A comparison is next made between the rates of mort. on healthy lives and diseased lives, and on the amalgamated results of the healthy and diseased, of which the result is as follows :

The foregoing comparison points out that while the rate of mort. of diseased assu. lives is at ages under 60 about 20 p.c. greater than healthy assu. lives, the rate of mort. on all lives—healthy and diseased—is only greater by about $\frac{1}{3}$ p.c.; thereby indicating the smallness of the add. to the prem. required to be paid by the whole of the lives which would cover the increased risk in respect to diseased lives. The difference between the rates of mort. on healthy and on diseased lives is very much less than the difference between the rates on assu. "with" and "without" profits, which shows that the constitutional infirmities detected by the medical officer are not so unfavourable as the grounds of the secret motives which determined the assured to select assu. at the cheapest non-par. rates of prem.

An examination of the grounds of the "extra charge" for defective health showed that several sections of the imperfect lives might be formed, "according to the nature of the deteriorating element for which such charge was made." Some, however, could not be so classed. Four sections were formed—those charged extra for : (1) unfavourable personal hist., including gout and hernia ; (2) unfavourable family hist. ; (3) gout ; (4) hernia. The rates of mort. (summed in quinquennial groups) in these classes separately and in total are given in tabular form—the following being the general result :

1. That the mort. on lives charged extra for defective personal health greatly exceeds that on the lives charged extra for unfavourable family hist. 2. That the mort. on lives charged extra for gout is greatly in excess of that for any other infirmity. 3. That the mort. for lives charged extra for hernia is lighter than on healthy lives.

From the above materials, as to personal hist. and gout, Mr. Meikle has prepared adjusted T. of mort. From these again T. of annu. of £1 during life, and of the ann. prem. for assu. of £100 at death, were prepared at 3 p.c. int. : a comparison of which with the rates required for healthy lives shows the add. prem. for "unfavourable personal hist." and for gout. We can only find space for the following T.

I.—TABLE SHOWING THE ADJUSTED LAW OF MORT. OF DISEASED LIVES.

Age.	LAW OF MORTALITY.			Age.	LAW OF MORTALITY.		
	Total Diseased Lives, Scottish Offices.	Unfavourable Personal History.	Gout.		Total Diseased Lives, Scottish Offices.	Unfavourable Personal History.	Gout.
20	10000	10000	10000	55	6564	6178	5027
21	9988	10000	9832	56	6396	5975	4872
22	9962	10000	9663	57	6222	5768	4711
23	9923	9967	9494	58	6043	5558	4544
24	9871	9908	9325	59	5858	5347	4371
25	9807	9818	9157	60	5668	5137	4193
26	9734	9717	8989	61	5473	4928	4010
27	9653	9603	8822	62	5273	4721	3822
28	9566	9482	8657	63	5069	4517	3629
29	9474	9357	8494	64	4859	4317	3434
30	9380	9231	8333	65	4646	4121	3235
31	9284	9108	8175	66	4428	3929	3034
32	9186	8988	8021	67	4206	3740	2832
33	9089	8875	7871	68	3981	3555	2630
34	8992	8768	7724	69	3751	3373	2429
35	8896	8667	7582	70	3519	3192	2230
36	8801	8572	7443	71	3284	3012	2034
37	8706	8483	7308	72	3046	2832	1842
38	8612	8397	7177	73	2807	2652	1655
39	8518	8314	7050	74	2567	2469	1473
40	8423	8231	6925	75	2327	2284	1301
41	8327	8147	6803	76	2088	2095	1136
42	8229	8060	6683	77	1853	1904	980
43	8129	7969	6565	78	1622	1709	834
44	8026	7871	6448	79	1397	1513	699
45	7920	7766	6330	80	1181	1316	575
46	7809	7651	6213	81	976	1120	463
47	7693	7527	6094	82	784	929	393
48	7572	7393	5973	83	608	744	275
49	7446	7248	5850	84	450	570	200
50	7314	7093	5724	85	314	412	137
51	7176	6927	5594	86	200	273	87
52	7032	6752	5460	87	111	158	48
53	6882	6568	5321	88	49	72	21
54	6726	6377	5177	89	12	18	5

II.—TABLE SHOWING THE ANN. PREM. FOR INS. £100 AT DEATH ON DISEASED LIVES
(3 P.C.) AT QUINQUENNIAL PERIODS.

Age.	ANN. PREM. FOR ASSU. OF £100.				General Extra Prem. for Diseased Lives. Cols. (3—2).	Extra Prem. for unfavourable Personal History.	Extra Prem. for Gout.	Average Ann. Prem. for £100. English and Scottish Offices.
	Healthy Lives. (Col. 2.)	Total Diseased Lives. (Col. 3.)	Unfavour- able Personal History.	Gout.				
20	1'434	1'513	...	2'238	'079	...	'804	1'803
25	1'632	1'799	1'942	2'407	'167	'310	'775	1'985
30	1'871	2'063	2'161	2'598	'192	'290	'727	2'221
35	2'169	2'374	2'444	2'860	'205	'275	'691	2'554
40	2'548	2'815	2'924	3'259	'267	'376	'711	3'006
45	3'044	3'379	3'592	3'860	'335	'548	'816	3'592
50	3'707	4'131	4'380	4'720	'424	'673	1'013	4'292
55	4'611	5'101	5'236	5'901	'490	'625	1'290	5'308
60	5'854	6'394	6'213	7'486	'540	+ '359	1'632	6'568
65	7'579	8'223	7'558	9'626	'644	— '021	2'047	8'216
70	9'979	10'988	9'807	12'623	1'009	— '172	2'644	10'364
75	13'329	15'523	13'944	17'170	2'194	+ '615	3'841	13'136
80	18'130	23'926	22'156	25'184	5'796	4'026	7'054	16'939
85	24'104	44'071	42'469	44'317	19'967	18'365	20'213	23'149

In dealing with the results given in the Scottish Rep. and in Mr. Meikle's paper, it must always be remembered that in the data upon which those results are based there were included no returns from any ins. asso. making the ins. of diseased lives a special feature. The contributing offices were *Scottish Widows', N. British and Mercantile, Edinburgh L., S. Union, Standard, S. Equitable, S. Provident, City of Glasgow, Life Asso. of Scotland, S. National*,—10 in all, or just one-half in number of the entire cos. who contributed their experience.

Mr. Meikle in another part of his obs. remarks that a classification of the causes of death of "diseased lives" points out the interesting medical fact that of those charged extra for *gout*, only 32 p. 1000 died from tubercular diseases; while 123 p. 1000 died from diseases of uncertain seat; 264 p. 1000 died from diseases of the brain; 129 p. 1000 died from diseases of the heart; and of those charged extra for *unfavourable personal and family hist.*, only 48 and 55 p. 1000 died from diseases of uncertain seat; while 156 and 218 p. 1000 died from tubercular diseases; 169 and 182 p. 1000 died from D. of the brain; 90 and 73 p. 1000 died from D. of the heart, etc.; 163 and 145 p. 1000 died from D. of the lungs; 128 and 218 p. 1000 died from diseases of the stomach and liver.

In 1871 the mort. experience of the *Gresham L.* was again pub. by its medical adviser, Mr. A. H. Smee, extending over its second 1000 deaths. This time we have no specific T. for the diseased life class, but there are several T. of considerable interest regarding the general mort. of the Co. These will be given under *GRESHAM LIFE, MORT. EXPERIENCE OF*.

In 1872 Mr. James R. Macfadyen read before the Inst. of Act. a paper, "*On Extra Premium*," in which he considered many points arising out of the practice of ins. diseased lives. [*Assu. Mag.* xvii. p. 77.]

In the same year Mr. Makeham contributed to the same vol. of the *Mag.* a paper, *On the Means of dispensing with Extra Prem. for Deteriorated Health*. From this paper we take the following passages:

The recently pub. experience of assu. offices shows beyond dispute that lives which have been taken at an extra prem. are, upon the whole, materially worse than those taken at the ordinary rates—although, perhaps, not to the extent which might have been supposed. Comparing the average duration of life among the healthy and deteriorated lives respectively, I find that, roughly speaking, the results may be thus stated:—

At the ages 15 to 25 the difference corresponds to an add. of 6 years to the age.

"	25	"	35	"	"	5	"
"	35	"	45	"	"	4	"
"	45	"	55	"	"	3	"
"	55	"	65	"	"	2	"
"	65	"	75	"	"	1	"

while from and after the age of 80 the two T. about coincide—indeed in some instances the deteriorated lives have rather the advantage—an anomaly due prob. to the paucity of the lives under obs. at those advanced ages.

It is to be regretted that the average amount of extra prem. charged in the cases from which these results were deduced has not been ascertained. Nevertheless, I think it is evident that, while the existence of a higher mort. is indisputable, it is covered—and prob. considerably more than covered—by the extra charges usually made. The conclusion, therefore, to be drawn from the experience in question, seems to be that, while perhaps the imposition of extra prem. may be somewhat more sparingly resorted to than formerly, still it would be highly injudicious to dispense with them in cases where the existence of decidedly unfavourable circumstances is evident. For although, if a fair general average were obtained, the tabular rates would be fully adequate to cover the normal proportion of such lives, yet an office known to adopt a practice of this kind would doubtless be resorted

to by an inferior class of lives, in numbers sufficient to disturb the average, and thus its aggregate mort. might by this means be affected to a serious extent.

The editors of the *Assu. Mag.* say in a note :

The above paper will no doubt prove practically useful to the man. of the cos. which adopt the method of charging for impaired health therein discussed; but it appears to us to be even more valuable to the student of the theory of life contin., as suggesting the course which future investigations into the mort. among under-average lives should follow. Mr. Makeham's investigations clearly demonstrate that the point to be ascertained is *whether the increased mort. among such lives is more apparent immediately after the grant of the pol. or in later years; and any future investigation into such mort. must be considered incomplete that does not give special attention to this point.*

We shall review this branch of the subject in some detail under EXTRA PREMS.

The *Deutsche Versicherungs Zeitung*, 1872, contained an able art. on the ins. of diseased lives, from which the following passages are taken :

Whenever it happens, as is sometimes the case, that a life ins. co. finds itself in circumstances in which it considers itself justified in accepting an application for ins. from a person who has been rejected by other cos., the co. usually falls into bad repute with the other cos. It gets the reputation of being ready to accept any application that is made. This reproach is far from being always well-deserved. What may seem, at first sight, to be evidence of a readiness to accept any applications that are presented without proper and reasonable precaution, may, in reality, be only the result of a more careful examination and more exact diagnosis. There are a great many questions relating to life ins. which still remain unsettled. One of them is, what is the proper mode of applying the principles that control the examination of applicants? The doubts and uncertainties which hang over this subject have often given rise to serious differences of opinion between the directors of cos. and their general agents. Where doctors disagree, who shall decide? . . .

Life ins. cos. are too rigid and narrow in their conservatism. There is no reason why they should not use judgment and discretion in reference to the circumstances of each particular case, and adjust the prems. charged in accordance with such circumstances. This is what is done by fire ins. cos. Fire ins. cos. modify their terms, make them more or less strict according to the nature of the risk. In life ins. also, the liability incurred by a co. in assuming various risks, which are widely different in their nature, cannot in the nature of things be correctly estimated by any fixed and inflexible rule. The function of ins., considered in its broadest sense, is to provide an indemnity upon the destruction of anything in existence, whenever its destruction involves a pecuniary loss. If the ins. actually provided by the existing cos. at the present day is less all-embracing in its scope, the cos. should at least aim at rendering it as much like the theoretical conception as is practicable. [DISEASED LIVES, INS. OF; PRACTICE.] [MEDICAL SELECTION.]

The directors of the *Barbadoes Mut. Life*, in their rep. presented to the proprietors in February, 1873, say :

The large number of applications which the directors of the so. are compelled from time to time to decline, and often on apparently trivial grounds, suggest to the board the propriety of entering on an inquiry respecting the after-duration of all the lives which have been refused since the formation of the so.—with a view, should the investigation prove favourable to such a step, of introducing a system *by which questionable lives may be accepted on a period of probation.* The Act. is now prosecuting the inquiry, and the board have simply referred to the subject on this occasion because they are retiring from office, and desire to hand it over to their successors for completion.

We shall be glad to learn the result of this investigation.

We believe that at present the practice of ins. diseased lives has not yet been introduced into the U.S. It has been contemplated, and there would seem to be scope for such an office; but it would require very strict management. It appears to be a rule there to peremptorily decline all cases of consumptive taint. Dr. Allen, in his *Medical Examinations for Life Ins.*, 5th ed., 1869, says: "The rule is absolute that consumptive cases should be rejected. Physical investigation is always to be exact, for the healthiest external appearance may but hide the germs of disease."

In 1873 an official document of great interest was pub. in the U.S. It was the medical rep. of the Provost Marshal General, and contained the results of the medical inspection of 605,000 men during the war. Fifty different nationalities are represented, and the average ratio of unfitness is 257 per 1000. The negro stands first in point of health, and after him the Canadians and Scandinavians. The Germans and Irish come last. The Germans, though with the largest chest-measure, proved among the most unhealthy. More disqualified persons were suffering from disorders of the digestive organs than from any other. Outdoor people were healthier than indoor. 52 p.c. of professional men were unfit for duty, and only 35 p.c. of unskilled labourers. But the average record shows more favourably than either England or Germany. This last dictum we take upon the authority of the rep. itself.

In view of the growing practical importance attached to the Ins. of Diseased Lives, we furnish a series of articles upon the subject of Disease, which would otherwise have been regarded as beyond our scope. [EAGLE L.] [HEALTH INS.] [MORT., LAW OF.] [SICKNESS.] **DISEASED LIVES, INS. OF; POINTS IN PRACTICE.**—In reference to the practice of ins. impaired and diseased lives, we may offer the following brief obs. We consider this branch of bus. should never be undertaken by a mutual office. It is at once too risky and too uncertain. A mixed office may undertake it, reserving, say, half the prospective profits to the shareholders, as a compensation for the great risk of loss; for it is at best only an even chance whether an office commencing the ins. of such risks will make profit, or loss, in its earlier years. It will take some 10 years to ascertain the fact; and it will then be too late to alter the contracts already accepted.

The asso. must bring to bear upon the selection of lives, and assessing the proper rate of prem., the highest medical skill it can command; either by securing the advice of several medical officers of large experience: or, better, by the aid of a board composed in part of medical practitioners. [MEDICAL SELECTION.]

The proposal form should be specially devised with regard to the nature of the bus. proposed to be undertaken. The policy should be most strict in its conditions; securing the absolute right of forfeiture in the event of any intentional concealment being discovered. A copy of the proposal should in all cases be attached to and made part and parcel of the pol. [PROPOSAL FORMS.]

In the periodical valuations for profits, a principle must be settled. Either the lives must all be taken at their increased ages—that is their real age, plus the office add.; or the whole of the *special* loading on existing lives must be reserved. [EXTRA PREMS.] [SURPLUS.]

In the case of surrender of policies, the value given must be founded on the actual experience of the office so far as that can be ascertained. [SURRENDER VALUES.]

The 6th schedule (last question) of L. Assu. Cos. Act, 1870, requires "statement of the manner in which pol. on unhealthy lives are dealt with." This affords the means of throwing some light upon the practice of offices in this important particular. Taking the returns for 1871 and 1872, we have the following results:

Albion.—"Diseased lives were taken at equivalent increased ages."

Atlas.—"No unhealthy lives taken."

British Provident.—"Pol. on unhealthy lives are treated as though the assumed ages were the real ages."

Caledonian.—"Pol. on lives for which an extra prem. is charged on account of health are valued at the actual age, throwing off the whole of the addition to the net prem., the ann. extra prem. being held to cover the add. risk."

City of Glasgow.—"Assu. on the lives of persons of less than average health, and of persons exposed to climate or occupation risks, were valued at the actual ages of the assured, the extra prem. payable each year being considered sufficient to cover any increase such risks might occasion in the mort. thereof."

Clergy Mut..—"In the case of pol. upon lives taken out at increased prems., the difference between the prems. charged and the ordinary prem. is not included in valuation of prems. receivable."

Clerical, Medical.—"For purposes of reserve and distribution of bonus, pol. granted on unhealthy lives are treated as though the assumed ages on which the increased prems. are based were the real ages; but for purposes of surrender they are treated as though granted at ordin. rates."

Colonial.—"In the case of pol. on unhealthy lives, the add. prems. charged are regarded as a source of income, out of which the extra claims arising from the increased mort. of this class are to be paid."

Crown.—"Pol. on lives below the average, accepted at prems. for an increased age, are treated as if the increased age were the real age of the assured."

Eagle.—"Pol. on unhealthy lives are dealt with for all purposes as if the advanced ages at which the lives have been accepted were the true ages."

Edinburgh.—"Pol. on unhealthy lives have been valued at the investigation at the advanced ages corresponding to the rates of prem. charged."

English and Scottish Law.—Question not answered.

Equity and Law.—"On the grant of a pol. on the life of a person who is believed to have an expect. of life less than the average, the age is taken as increased by a certain number of years corresponding to the add. prem. charged. Then in all calculations as to the amount to be reserved for the pol. and the distribution of bonus, the life is always treated as if the assumed age at entry had been the real age. But in the case of the holder of a pol. wishing to surrender it, the presumption being that the life assured is in better health than at the date of the issue of the pol., the surrender value is calculated as if the prem. for the real age at entry had been charged."

Friends' Provident.—"The manner of dealing with pol. on lives estimated to be other than first-class is by charging 'extra prems.'"

Guardian.—"In valuing pol. upon invalid lives, the advance ages are taken for which the prems. have been charged."

Hand-in-Hand.—"As regards pol. on unhealthy lives, both in the ann. valuations and for surrenders, the extra prems. are thrown off, and the lives treated as of average value at their real ages."

Imperial.—"Pol. on unhealthy lives are valued as at the advanced ages charged for."

Law Life.—"The So. does not accept risks on lives considered actually unhealthy; but in somewhat doubtful cases an add. is made to the prem., adapted to the exigencies of the particular case."

Law Property.—"The add. prems. for assu. on the lives of persons not of the first class in eligibility form part of the ordin. prem.—the lives being considered as so much older, or a per-centage add. to the tabular prem. is made."

Law Union.—"Lives taken at increased rates of prem. are treated (for valuation, but not for surrender) as being of the ages to which, according to the Co.'s pub. T., such increased rates of prem. correspond."

Legal and General.—"If a pol. is granted on an unhealthy or under-average life, the prem. is charged as though the true age were as much higher as is supposed to cor-

respond to the deterioration. The office age is then substituted for the true age for all valuation and reserve purposes. For purposes of surrender, whether of pol. or bonus, the true age is adopted."

Life Asso. of Scotland.—"Pol. on unhealthy or under-average lives, assured at higher prem. than the ordin. rates for their true ages, are dealt with in the valuations as of the higher ages corresponding to the prem. charged."

Lond. Assurance.—"In the case of pol. on unhealthy lives, the add. prem. charged are regarded as a source of income, out of which the extra claims arising ann. from the increased mort. of this class are defrayed. So that, referring to Schedule 5, answer to question 7, the 'net liability' is the same, but the difference between the office and the net prem. is greater in these pol. than in similar pol. on healthy lives."

Lond. Life.—"In the few cases in which a pol. has been issued on a life considered to be below the average, the prem. for an older age has been charged, and the valuation is made as for a pol. on a life of such increased age."

Lond. and Prov. Law.—"Lives assu. at increased rates were assumed to be, at entry, of the ages corresponding to the prem. charged."

Lond. and Southwark.—"Pol. are not granted upon lives in an advanced state of disease; but in all cases where lives are deteriorated to a moderate extent only, such an add. is made to the tabular prem. as is believed will compensate for such deterioration."

Marine and General.—"When pol. are granted on unhealthy lives, they are dealt with by an add. to the age of the assured life."

Metropolitan.—"Pol. on unhealthy lives, accepted at prem. for an increased age, are treated both for valuation and surrender as if the increased age were the real age of the life assured."

Midland Counties.—Question not answered.

Mutual.—"No lives are accepted which are deemed to be actually unhealthy; but in doubtful cases an increased prem. is charged, according to the exigencies of the case; and they are dealt with in the valuation as pol. issued at the higher prem., but at the true ages of the lives upon which the pol. are effected."

National Guardian.—"Unhealthy lives are not assured by the Co."

National Life.—"In every case where, on account of the life, at the time of the proposal, having been considered under the average as regards prospect of longevity, an assu. has been granted at a permanently increased prem., the pol. is classified and valued at an add. to the real age corresponding to such increased prem."

North British and M.—"Pol. on unhealthy lives, accepted at prem. corresponding to an increased age, are dealt with in all valuations, whether for surrender or ascertaining the Co.'s liability under them, as if the increased age were the real age."

Northern.—"In the case of pol. issued at increased prem. on the lives of persons supposed to have an expec. of life less than the average, the advanced ages for which the prem. have been charged are taken in all calculations, whether as to the amount to be reserved for the pol. or the value for surrender."

Norwich Union.—"As a rule, unhealthy lives are not insured in this office. In valuing the *Amicable* pol., where any extra prem. has been charged, the life has been treated as existing at an advanced age."

Pelican.—"Pol. on unhealthy lives are dealt with at their rated age, and not at their real age."

Planet.—"Lives assu. at increased rates were valued at the ages corresponding to the prem. charged, so that an increased reserve is made for every increased prem."

Provincial.—"Unhealthy lives are not accepted, but lives considered rather below the average are sometimes taken at increased prem. In such cases the pol. are entered and valued according to the true ages of the lives, and at the prem. corresponding thereto."

Prudential.—"No increased prem. is charged on unhealthy lives; the add. risk is met by providing that a deduction shall be made from the sum assured in the event of death within a specified term of years. This deduction decreases yearly during the term, at the end of which it disappears entirely. In valuing these pol. the full sum assured is in all cases computed. A few old pol. are in existence, on which the prem. are increased. In these cases the value has been ascertained upon the 'rated up' principle."

Rock.—"In cases in which an add. prem. has been charged for any deviation from the normal standard of health, in the valuation of pol. to ascertain the liability thereunder, as well as to determine the value thereof for surrender, no account is taken of such add., which is arbitrarily assessed: it being considered, as with extra prem., that the add. amount charged is the exact measure of the add. current risk incurred, and is entirely absorbed thereby."

Royal.—"Proposals for assu. on the lives of persons whose constitutions are, from any causes, regarded as much inferior to the average healthy standard, are not entertained. If only slightly impaired, they are usually accepted at rates applicable to some more advanced age at which the expec. of life is judged to correspond with that of the lives proposed. The assumed ages at entry are adopted as part of the basis for the calculations which may subsequently have to be made in connexion with such assu."

Royal Exchange.—"The add. prem. charged on those lives which do not come up to the full standard of eligibility with regard to health form part of the ordinary prem.; and the lives being rated accordingly as so much older, in reference to the increased risk, the pol. are treated for all purposes as for the advanced ages in conformity with the prem. charged."

Scottish Amicable.—"Pol. on under-average lives are valued at the advanced ages corresponding to the prem. charged."

Scottish Imperial.—"In valuing pol. upon invalid lives, the advanced ages are taken for which the prem. have been charged."

Scottish Provincial.—"Pol. on unhealthy (under-average) lives are dealt with as if the assu. were of the age represented by the prem. charged."

Scottish Union.—"In cases where the ins. was not considered an average life, and an extra prem. charged by the Co., the age corresponding to the prem. paid has been adopted, and the life classified accordingly."

Standard.—"The Co. do not grant assu. on unhealthy lives. Small extra prem. are occasionally charged for gout, hernia, etc., but such extra prem. are thrown off at valuation, the future extra prem. being held equal to the future extra risk."

Union.—"In valuing pol. on unhealthy lives, the rated age is that at which the valuation is made; if, however, the pol. is valued for surrender, the true age is taken."

United Kent.—Question not answered.

United Kingdom Temperance.—"In the case of lives which are considered below the average standard of health, and which would only be accepted at an advanced rate of prem., the plan adopted is to charge the ordin. rate of prem. for the actual age of the life, and to make the pol. chargeable with a debt, equal in amount to the difference between the tabular rate of prem. and the rate which would be payable for the add. age at which the life is accepted, multiplied by the number of years of the expectancy of such life at its actual age: such debt being diminished every year by the amount of the difference charged, until the debt is extinguished.

In some instances the increased prem. for the add. age is charged; when this is done, the valuation is made upon the increased prem. and at the corresponding age. In cases of simple gout or rheumatism, an add. of 5 or 10 p.c. on the prem. is made. This extra prem. is valued as part of the ordin. prem."

Universal.—"Pol. on lives below the average, accepted . . . at prem. corresponding with those charged at an increased age, are treated in the classification of age, liability valuations, and terms for surrender, as if the increased ages were the actual ages of the assured."

University.—"The So.'s bus. is confined to the assu. of first-class lives. In cases of slight gout or rupture a small extra prem. is charged, not exceeding 10s. p.c. in extreme cases on the amount of the ordin. prem. . . . These extra prem., being intended to cover the especial and temporary risk, do not enter into the calculation of the pol. values."

Westminster and General.—"When an increased rate of prem. is charged for an assu. in consequence of the espec. of the life being estimated by the medical officer as being below the average, the pol. is valued as though the age corresponding to the increased age had been the real age of the life assu. when the pol. was effected."

Whittington.—"No lives that are deemed actually unhealthy are insured; but in doubtful cases an add. is either made to the prem., or a special condition is made, that should the assu. die within a certain number of years, an abatement shall be made from the sum assu."

Yorkshire.—"Pol. on unhealthy lives are not granted by the office; in case of pol. on lives below the average at increased prem., such extra prem. are excluded from the valuation. The pol. are dealt with as if issued at the true ages."

In the *Deutsche Versicherungs Zeitung*, 1872, certain propositions were contained regarding the ins. of diseased lives, especially such as had suffered from diseases of a class which entail no permanent injury on the constitution; and out of this was evolved the following proposition, which we commend to the consideration of our readers:

The point to which we would draw especial attention is this—when the person making the application has had a disease of this class, and five years have not elapsed, why should not the co. say to the applicant, "We will make an ins. on your life, upon the express understanding, nevertheless, that in case you die within five years of such and such a disease, naming it, or from any of its consequences, we will refund to your representatives all prem. paid us without int. and exclusive of disbursements, and pay nothing more. In case of death within the period of five years of any disease which has no connexion with the disease specified, we will, of course, pay the whole amount ins." The plan suggested makes provision only for a single specified disease, but the same principle is capable of wider application. Reference might be had to this principle in estimating the risk as a whole. The only mode of disposing of the class of cases which has been mentioned, without wholly rejecting them, unless some such principle as we have suggested is adopted, is to accept them at a higher rate of prem. This course is objectionable. A great increase in the prem. alarms people, and sometimes deters them from obtaining the insurance at all. There is danger that such increase may have an injurious effect on their expectation of life. Whereas, on the contrary, the effect which would be exerted by the proposed plan would be most salutary. It would render people cautious and watchful in regard to the disorders towards which they had a tendency. The instinct of self-preservation thus guided, would protect a person against many an excess into which he might otherwise fall, and allow those natural forces, on which after all the physician predicates all his calculations, a free and full operation.

DISEASED MEAT.—With a view to the protection of the public health, the Nuisances

Removal Act of 1855 embodied certain provisions with respect to the seizure of diseased and unwholesome meat. These provisions, however, were found defective, and accordingly the 26 & 27 Vict. c. 117 (1863) was passed, giving enlarged powers, which, in London at least, are being pretty rigorously carried out. The Public Health and Local Government Acts and the Nuisances Removal Acts also contain provisions to this end. [FOOD.] [PUBLIC HEALTH.]

DISEASES, CLASSIFICATION OF.—He who would thoroughly understand the scope and bearing of Vital Statistics as a science, must of necessity know something of the principles of classification as well as of the nomenclature of diseases.

The Classification of Diseases is indeed regarded by purely scientific writers as only one, and perhaps the least important of the several processes involved in scientific Nosology. These processes are—(1) the *distinction* and *definition* of particular diseases, or of the genera and species of disease; (2) the *nomenclature* of diseases, or the assignment of the names by which they are to be designated, so that each may be distinguished and known by an appropriate name; (3) the *arrangement* or *classification* of diseases in some methodic and convenient order, by which they may be distributed into classes, orders, genera, and species. The two former are necessarily dependent upon the state of medical and scientific knowledge. The latter is requisite for statistical purposes; and is essentially important to be understood here, in view of our frequent reference to the returns of the Registrars-General of the U.K.

The number of diseases to which mankind is subject or liable we may presume remains always the same; the circumstance of their prevalence or recurrence, and their intensity, being regulated by the varying circumstances of climate, locality, and sanitary regulations; and the facilities with which they are combated by the state of medical science at the period under obs.

Sauvages described 300 genera and innumerable species of diseases in his nosology. The genera in Cullen's nosology amount to 151; Good has 137 genera in his nosology, and 490 species, besides varieties. Dr. Farr says (1839), exclusive of malformations, the species amount to 465, of which 234 may, perhaps, be fatal at one time or another. The list of the College of Physicians (1868) extends to 1146—but this includes fractures, sprains, bruises, and other injuries, which cannot be classed as "diseases." The diseases enumerated in the first Lond. B. of Mort. did not exceed 65 in number; 199 occur in the B. of Mort. for Philadelphia (1836). The number of able minds which have been directed to the subject at once bespeaks its importance.

Sydenham, the Father of the English school of medicine, in the preface to his work *On Acute Diseases*, first pub. in 1675, recommended that definitions or brief descriptions of diseases should be framed after the model of those that were given of plants; and he laid down various judicious rules for the proper execution of this object. These precepts of Sydenham were never reduced to practice in his day; but we shall see that they were afterwards adopted by others.

In 1732 Prof. Franciscus Boissier de Sauvages, an eminent physician at Montpellier, following up the idea of Sydenham, attempted to arrange diseases as botanists have arranged plants, viz. into classes, orders, and genera. He endeavoured to lay down the characteristic phenomena of each, and to enumerate their principal varieties. In this, his first attempt, he presented the outlines only. Some thirty years later he pub. his *Nosologia Methodica*—a work which has been declared to mark an important era in the hist. of medicine, "as having led to much greater accuracy in the distinction of diseases than was previously observed."

In 1750 Linnæus pub. his *Materia Medica*, which contained a classification of diseases, based upon a similar method of arrangement.

In 1768 Dr. Rudolph A. Vogel pub. in Gottingen, *Opuscula Medica selecta in unum Collecta*. The classification of diseases here given attracted the attention of Cullen, and was repub. by him. (See 1777.)

In 1772 Dr. David Macbride pub. his famous work, *Methodical Introduction to the Theory and Practice of Medicine*, wherein was contained a classification of diseases which afterwards also attracted the attention of Cullen.

In 1776 Dr. Joannes B. M. Sagar pub. in Vienna: *Systema Morborum Symptomaticum*. His classification of diseases, as contained therein, also came under the particular attention of Cullen.

In 1777 the famous Dr. Cullen pub. his *First Series of the Practice of Physic*—a work which has been frequently reprinted, and has also been translated into several European languages. He divided diseases into four classes: (1) the *Pyræxia*, or febrile diseases, of which pleurisy is a type; (2) *Neuroses*, or nervous diseases, of which epilepsy is the type; (3) *Cachexia*, or diseases of an ill habit of body, of which scurvy may be taken as the type; (4) *Locales*, or local diseases, of which tumours are a type. In 1785 he pub. *Synopsis Nosologia Methodica*, wherein was contained the nosologies of Sauvages, Linnæus, Vogel, Sagar, and Macbride; and finally his own, amplified into a system. This was speedily recognized as far in advance of any of the preceding. He was in favour of definitions derived from the symptoms; but he believed that the information derived from pathological anatomy might guide to correct distinctions among diseases. Defining

diseases by their supposed proximate causes, he was of opinion, might lead to error, inasmuch as in many cases these causes are disputable, and may long continue to be so. Whatever principle of defining diseases be adopted, it was absolutely necessary that it should be independent of every theoretical view; for any theory employed, however specious, however much we may be persuaded of its truth, may not appear in the same point of view to others, and may therefore occasion endless confusion. Such was some of his teaching.

Cullen entered upon his task with much more comprehensive views than Sauvages. With a more lucid order and a happier simplicity, he excelled in accuracy of definitions all who had gone before him. His description of disease received no colouring from his theories. They are faithful to nature, consistent with the knowledge of his day; and, greatly in advance of his time, his orig. and inventive mind dwelt much on the causes of disease in all his reasonings and explanations on medical subjects. Aware, however, of the imperfections of the art of medicine, he did not attempt to arrange diseases according to their proximate causes, but according to a method founded partly on their symptoms, partly on their causes, and partly on their seats.—*Currie*.

Dr. Farr, while he admits the simplicity and merits of Cullen's system, yet says it "is so artificial as to render it very ill-suited to statistical purposes, where it is desirable to bring facts together, not only allied in one fugitive point, but in their fixed anatomical or general characters."

It is interesting to note that Dr. Heysham classified the Carlisle obs. according to Cullen's nosology.

In 1787 Dr. Christianus Theophilus Selle pub. in Amsterdam his *Rudimenta Pyretologiae Methodica*, wherein was contained a nosology of disease.

Dr. Guilielmus G. Ploncquet, in his *Delineatio Systematis Nosologici naturæ accommodati*, pub. at Tübingen in 1791-3, says, "The name of each disease or species should be so characteristic and significant that a person, slightly acquainted with the language and the subject, should, on hearing it, immediately understand what is the nature of the disease it designates."

In 1794-6 Dr. Erasmus Darwin pub. *Zoonomia, or the Laws of Organic Life*, 3rd ed. 1801, wherein was contained [vol. 3], a classification of diseases.

Dr. Robert Willan, M.D., in his *Reports on the Diseases of Lond.*, etc., pub. 1801, says, "Most of the plans of nosology are exceptionable, as being formed on hypothetical principles rather than on strict analogy between the diseases put in the same order."

In 1801 M. F. Xavier Bichat pub. in Paris, *Anatomie Générale, Appliquée à la Physiologie et à la Médecine*. [Trans. into English 1824.] This work contains a nosology, classified physiologically, or after the functions involved in disease.

In 1802 was pub. in Paris by Dr. Philippe Pinel, M.D., *Nosographie Philosophique, ou la méthode de l'analyse appliquée à la Médecine* (2nd ed.).

In 1805 Sir Alexander M. Crichton, M.D., pub. *Table of Diseases*.

In 1805 M. Felix Vicq-d'Azyr pub. in Paris: *Œuvres, recueillies, avec des notes et sa vie, par Jacques L. Moreau de la Sarthe*, wherein was included a classification of diseases arranged on a physiological basis.

In 1809 Dr. Bartholomew Parr pub. *Lond. Medical Dictionary*, in which was embodied a classification of Diseases.

The Baron G. Dupuytren, in the early part of the present century, reviewing several of the classifications of which we have already spoken, remarked, that considered abstractedly, they were inferior to the "symptomatological classifications."

Early in the present century the Baron Anthelme Richarand pub. in Paris: *Nosographie Chirurgicale*, 3rd ed. 1812. The 5th ed. 1821, bore the title of *Nosographie et Thérapeutique chirurgicales*.

In 1813 Dr. Thomas Young, M.D., pub. *Introduction to Medical Literature*, including a *System of Practical Nosology*. He adopted a physiological basis of classification.

In 1813 Dr. Thomas Bateman pub. *Practical Synopsis of Cutaneous Diseases according to the arrangement of Dr. Willan*. This work passed through many eds.

In 1817 Dr. John Mason Good, M.D., pub. *Physiological System of Nosology, with a corrected and simplified nomenclature*. He also adopted a physiological basis of classification. He divided diseases into 6 classes: those affecting the digestive, the respiratory, the sanguineous, the nervous, the sexual, and the excrement functions; and a 7th class of fortuitous lesions and deformities.

In 1836 Dr. Craigie arranged a classification founded on the *pathological nature of the different morbid processes*: the arrangement of the orders and sub-divisions being determined by the anatomical arrangement of the textures and organs of the animal body, as originally developed by Bichat.

In 1838 Prof. Robert Carswell pub. *Pathological Anatomy: Illustrations of the Elementary Forms of Disease*, wherein he proposed a classification based upon the elementary phenomena and products of disease. Dr. Farr is of opinion that such a method would "prob. lead to important numerical results, if it could be realized in the present state of medical observation." [*First Rep. R.-G.* 1839.]

Attention became necessarily drawn to the classification of diseases after the passing of the

English Gen. Registration Act in 1836. The returns to result from it, if they were to possess any real value, must be based on data recorded on some principle of uniformity. The College of Physicians, the College of Surgeons, and the So. of Apothecaries undertook, in the name of their respective members, that "an authentic name of the fatal disease" causing death should be returned. But in order to secure absolute uniformity, it was found to be necessary to adopt a nomenclature easy of comprehension, and as far as possible adapted to the general state of scientific knowledge of the period. Dr. Farr at this point came to the rescue, and prepared a nosology of causes of death suited to the circumstances. He says in his letter pub. in 1st rep. of Reg.-Gen. 1839:

The primary divisions of a statistical nosology should evidently be founded on the mode in which diseases affect the pop.: whether they are generated and prevail only in particular localities (endemics), extend like cholera over nations (epidemics), or are promulgated by contagion; whether they arise in an isolated manner (sporadically) from ordinary causes and sources existing in the organization itself; or whether they are caused by violent means. The first class will embrace all diseases like ague, fever, smallpox, and cholera, that prevail epidemically or epidemically, together with hydrophobia and such maladies as are communicated by inoculation. This great class of maladies is the index of salubrity; it is this class which varies to the greatest extent in different climates and seasons; it is this class that has latterly been so much diminished in England, and that constitutes the principal difference between the health of different populations and different periods; for fearful and destructive as epidemics are in their strength, sweeping mankind of every age before them, like an irresistible conflagration, they can be controlled; and almost always admit of prevention or mitigation. Of the utility of keeping this class of diseases distinct in a practical sanitary rep. there can be no question. The ancient division of plagues and sporadic diseases has therefore been retained.

Classification is another name for generalization, and successive generalizations constitute the laws of the natural sciences. But it is obvious that the classification must depend not absolutely on the facts considered in their essential nature, but also upon the form, character, and accuracy of the obs. And this renders necessary a brief reference to the mode in which the causes of death have been recorded.

Diseases are not always easily distinguished: the symptoms of different species appear simultaneously and are confounded; the nature of the affection is sometimes known, while many of the organs involved are concealed; or the part affected is recognized when the precise nature of the lesion can only be discovered by *post-mortem* examination. These obstacles to the accurate determination of disease are inherent to the subject; other sources of inaccuracy may be traced to the incompetency and negligence of the observers. The result, so far as it affects the regis., is the same. It is generally less difficult, however, to determine from the external symptoms the part affected, whether it be the brain, lungs, heart, or intestines, than to ascertain whether the lesion be inflammation, tubercles, carcinoma, or ulcer. . . .

The learned writer then proceeds to show how he had adapted his classification of diseases to the purposes of national regis. In this we do not propose to follow him: his then arrangement having received subsequent modifications. Turning afterwards to the scientific aspect of the subject, he says:

The advantages of a uniform statistical nomenclature, however imperfect, are so obvious that it is surprising no attention has been paid to its enforcement in B. of Mort. Each disease has in many instances been denoted by *three or four terms, and each term has been applied to as many different diseases*. Vague inconvenient names have been employed, or complications have been regis. instead of primary diseases. The nomenclature is of as much importance in this department of inquiry as weights and measures in the physical sciences; and should be settled without delay.

In the 23rd vol. of *Annales d'Hygiène*, pub. about 1840, there appeared an art. by Dr. Marc d'Espine on *the Mort. and Diseases of Geneva*. This writer adopted a classification founded upon the *duration of diseases*, or the division into chronic and acute diseases; which he contends is better than the division into epidemic and sporadic diseases. Willan and Bateman had adopted a similar arrangement in their reps. Dr. Farr criticizes this method in the 2nd Rep. of Reg.-Gen. and condemns it.

In the 4th Rep. of the Reg.-Gen. (pub. 1842) Dr. Farr gave a more extended statistical nosology, with an alphabetical list of the causes of death, a paper on medical nomenclature, and a reply to some obs. made in a rep. by a sub-committee of the Royal College of Physicians, Edin. The subject is here treated in a scientific manner—too scientific to be followed by us. There is one obs. we may indorse: "There is nothing perhaps in which it would be more difficult to get all medical men to agree than in any one classification of diseases."

The late Dr. Charles J. B. Williams, in his *Principles of Medicine*, 1843, gave a system of classification in relation to the two heads *Structural and Functional Diseases*. The former was made to embrace neuroses, hæmorrhages, and dropsies; while inflammation, tubercle, cancer, melanosis, hypertrophy, and atrophy were the subordinate classes of the diseases of structure. The D. of function were made to embrace all those in which the action, the secretion, or the sensation of a part is impaired, without any primary alteration of structure of the organ or tissue affected, so far as could be ascertained. This author pointed out that since the appearance of Cullen's *Nosology*, our mere enumeration of diseases had almost doubled; while our knowledge of the facts relating to disease had more than doubled.

The 7th Rep. of the Reg.-Gen. (pub. 1846) contained a 2nd ed. of Dr. Farr's Statistical Nosology.

In the art. "Vital Statistics," in McCulloch's *British Empire*, 1846 [we cite from 4th ed. 1854], already quoted in this work as from the pen of Dr. Farr, an attempt is made to classify fatal diseases according to the organs affected at different ages.

In 1847 Dr. Wood, of Pennsylvania, adopted a ground of classification having reference to the *general nature and localization of the morbid states*. It comprehended 3 classes. 1.

Diseases which occupy the whole system at the same time, and in which all the functions are simultaneously deranged. These have been named general diseases, such as *fevers*.
 2. Constitutional affections, meaning thereby diseases which display themselves in local lesions in any part, or in several parts of the system, but not in all parts at the same time—e.g. *rheumatism*, *gout*. 3. Local morbid processes.

In 1852 Prof. Wunderlich proposed applying the principles of a purely *humoral pathology*, which produced a classification consisting of (a) fevers, (b) dyscrasias, (c) constitutional diseases, induced by (1) specific agents; (2) vegetable substances.

The first International Statistical Congress, held in Brussels in 1853, passed a resolution to the effect that it is desirable to construct a uniform nomenclature of the causes of death applicable in all countries. Dr. Farr took up the subject with his usual earnestness, and prepared a report to be presented at the next Congress, in Paris, in 1855. [See 1856.]

In the Appendix to the 16th Rep. of Reg.-Gen. (pub. 1856), there is contained, "Rep. on the Nomenclature and Statistical Classification of Diseases." This may be taken to be in substance the rep. presented by Dr. Farr to the International Statistical Congress held in Paris the preceding year. The writer says:

It is evidently desirable to extend the same system of nomenclature to diseases, which, *though not fatal*, cause disability in the pop. and now figure in the T. of the diseases of armies, navies, hospitals, prisons, lunatic asylums, public inst. of every kind, and sickness sos., as well as in the census of countries like Ireland, where the diseases of all the people are enumerated. I have therefore included in the general list the greater part of those diseases, such as ulcers, itch, blindness, and infirmities of various kinds, to serve for the classification of the diseases that affect the health as well as diseases that are fatal. These diseases, as well as the diseases that are not prevalent in Europe, are omitted in the mortuary list.

Again:

The causes of death were tabulated in the early B. of Mort. (*Tables Mortuaires*) *alphabetically*; and this course has the advantage of not raising any of those nice questions in which it is vain to expect physicians and statisticians to agree unanimously. But statistics is eminently a science of classification; and it is evident, on glancing at the subject cursorily, that any classification that brings together in groups diseases that have considerable affinity, or that are liable to be confounded with each other, is likely to facilitate the deduction of general principles.

Classification is a method of generalization. Several classifications may, therefore, be used with advantage; and the physician, the pathologist, or the jurist, each from his own point of view, may legitimately classify the diseases and the causes of death in the way that he thinks best adapted to facilitate his inquiries, and to yield general results.

The medical practitioner may find his main divisions of diseases on their treatment as medical or surgical; the pathologist, on the nature of the morbid action or product; the anatomist, or the physiologist, on the tissues and organs involved; the medical jurist, on the *suddenness* or the *slowness* of the death; and all these points well deserve attention in a statistical classification.

In the eyes of national statisticians, the most important elements are, however, brought into account in the ancient subdivision of diseases into plagues, or epidemics and endemics—into diseases of common occurrence (sporadic diseases), which may be conveniently divided into three classes, and into *injuries* the immediate results of violence or of external causes.

In the 22nd Rep. of Reg.-Gen. [returns for 1859], Dr. Farr returns to the subject:

The types of diseases have probably undergone as many changes as the human species, which, according to the great hypothesis of Darwin, is itself the crowning off-shoot of simpler forms; but the evidence of pathologic origins is rarely attainable, as species of disease are merely passing and necessarily fleeting states of human organism. They do not offer the same unity of form as an animal or a plant; and are in every way less sharply defined. Yet the new species are generated by the same law; they are at first as varieties confounded with old types, and are only recognized as distinct species when they have existed for some time; so it is impossible to fix on the precise point of origin. Diphtheria is an example. [DIPHTHERIA.] The increase of deaths by cancer and heart disease is due to similar causes. Ideas have changed, but this must not be confounded with any corresponding change of natural phenomena. Nature changes, but our ideas of her processes change still more frequently. An alteration of nomenclature will necessarily occur with every new interpretation of nature; so it should be kept within strict limits, and be borne perpetually in mind by the student in comparing the morbid phenomena of distant ages and localities.

M. de Savignac, Prof. of Clinical Medicine at the Naval School of Toulon, propounded in 1861 a Nosological arrangement, which he claims to be the natural one, viz. founded on the "*Elements*" of Disease. His "*elements*" lacked fixity of idea, and seemed to consist of general expressions or names to denote the leading phenomena of diseases, or the unknown cause of such phenomena. "In the formation of orders, genera, or groups of diseases under this classification, no fixed principle can be recognized."—*Aitkin*, 1864.

Dr. Fleming, in his *Medical Statistics of Life Assu.*, 1862, says:

All systematic nomenclatures of diseases are more or less arbitrary and open to reasonable challenge, according to the medical or statistical theory through which they are viewed. It is well, however, to have one fixed for public purposes by a recognized authority, and this has been done for us by the Reg.-Gen. The classification and nosology adopted in his ann. reports are sufficiently detailed for all practical purposes; and being now generally followed in statistical inquiries regarding disease and mort., I have prepared the subjoined T. in accordance with the arrangement we there find—thus facilitating reference and comparison.

Most other modern British writers on V. Statistics have likewise adopted the classification of the Reg.-Gen.

In the 5th Detailed Rep. of Scottish Reg.-Gen. (pub. 1863) Dr. Stark, the medical officer of the Department, offers the following observations:

As some misapprehension seems to exist regarding the difference between a *statistical* and a *scientific* nosology (or classification of diseases)—most people imagining them to be the same—a word of explanation seems requisite. A scientific nosology, being a purely theoretical classification of diseases, takes it for granted that every disease is accurately known, and can be referred to its exact species. Hence, in such a classification, every disease is arranged under the primary affection, and

not under the secondary complications which may arise in the course of the disease. No vague terms therefore are used in a scientific nosology, as it assumes that every disease can be referred to its proper class and species.

A statistical nosology, on the other hand, must be a practical one, and it must be so drawn up as to give an accurate abstract of all the causes of death entered on the *regis. books*. It therefore takes as its basis the most intelligent scientific nosology on which its framers can lay their hands, and adopts as its leading principle the rule, that every disease causing death must be tabulated under the *primary* disease, and not under its secondary complications. That is to say, a case of consumption, proving fatal by an attack of pneumonia supervening a week or two before the death, is tabulated as consumption, and not as pneumonia. In like manner a case of measles, terminating fatally by an attack of bronchitis or convulsions, is tabulated as measles, and not as bronchitis or convulsions. In so far then there is no difference in a scientific and a statistical classification of disease.

But as a statistical nosology has to deal with *facts*, and not with theories, and as the statistical T. must exhibit the whole deaths on the *regis.*, arranged as far as possible under their proper heads, *it requires to make add. to almost every class of diseases, in order that all those whose definitions are too imperfectly given in the regis. to enable them to be referred to their exact species, may be tabulated under their proper class.* Hence, for instance, after exhausting all the known specific diseases of the brain, as cephalitis, apoplexy, epilepsy, etc., the statistical nosology requires to add the vague term "Diseases of the Brain," meaning thereby all the diseases of the brain and nervous system so indefinitely returned in the *regis. books* that they could not be referred to any of the particular species. The same happens with lung disease, stomach disease, kidney disease, etc.

But there are other diseases which prove fatal where the primary cause has not been ascertained, either from there being no medical attendant, or from the medical attendant being himself at a loss as to the primary affection. Dropsy is of this nature. In a statistical nosology, therefore, such a disease must have a place. But the deaths tabulated under that term are those only in which the organ primarily affected was not distinguished; otherwise had it been designated "dropsy, from diseased heart," or from "D. kidney," it would have been tabulated under heart D. or kidney D., and not under dropsy.

The same principle applies to all other diseases and classes of diseases. For most practical purposes it is only important to know the total number of deaths in a pop. caused by certain classes of disease—say, for instance, D. of the respiratory organs. Were a purely scientific classification followed, a great mass of lung diseases, whose names were not accurately defined in the *regis. books*, would be thrown out, and put under "causes not ascertained, or too ill-defined to be referred to their class." In such a faulty classification, the pop. would seem to be much more free from affections of the respiratory organs than they were in reality; but by converting the *scientific* into a *statistical* nosology, and adding these vague terms at the end of every class, all the deaths from *each class of disease*, at all events, are accurately ascertained, and true conclusions as to the relative freedom from or susceptibility to certain classes of diseases arrived at.

Both in England and in Scotland, therefore, their statistical nosologies contain the same vague terms. In no other manner could the T. of diseases be correct abstracts of the causes of death entered on the *regis. books*. The medical practitioners, however, could do much to diminish the numbers which at present require to be tabulated under the above vague terms, by specifying in every case the primary disease, as well as the secondary complications.

In 1864 Dr. Stark proposed a statistical arrangement embracing 16 classes, viz. (1) fevers; (2) D. of the brain, etc.; (3) D. of the heart and organs of circulation; (4) D. of organs of respiration; (5) D. of organs of digestion; (6) D. of urinary organs; (7) D. of organs of generation; (8) D. of organs of locomotion; (9) D. of skin and cellular tissue; (10) D. of uncertain seat; (11) malformation; (12) debility at birth and premature birth; (13) old age; (14) sudden deaths; (15) violent or unnatural deaths; (16) causes not specified. It was claimed for this classification (which differs in several particulars from that of Dr. Farr) that it would "never hereafter require to be amended." Dr. Aitkin declares "classification conducted on the plan proposed by Dr. Stark is inconsistent with any intelligible principle of arrangement."

The distinguished pathologist, M. Bayle, in discussing the difficulties connected with classification, recommends following "the plan which presents fewest imperfections, remembering that the determination of specific characters is what is most essential in nosology, arrangement being the least important; for each arrangement will have its defects, will present its deficiencies, and exhibit some forced approximations."

Dr. Wm. Aitkin, from whose *Science and Practice of Medicine*, 3rd ed. 1864, we have drawn for various portions of the present art., says:

A perfectly philosophical or natural system of classification aims at having the details of its plan to agree in every respect with the facts as they exist in nature, and to be as it were a "translation of the thoughts of the Creator into the language of man." To effect this end, arrangements, as they *naturally* exist, require to be traced out, not devised. The tracts in which such a pursuit must be followed up, and in which our knowledge is as yet deficient, may be shortly indicated under the following heads, viz. 1. The affinities or alliances of diseases with each other. 2. The morbid anatomy of diseased parts. 3. The communication, propagation, inoculation, generation, development, course, and spontaneous natural termination of diseases. 4. The connexion of the phenomena recognized during life with the facts of morbid anatomy. 5. The geographical distribution of diseases. 6. The succession of diseases as far as they can be traced through past ages; the peculiarities they have exhibited at different periods in the world's history, or within comparatively recent cycles of years.

But the time has not yet come for a classification on a basis so comprehensive—simply because the material does not yet exist; and attempts to make so-called *natural* systems of arrangement must end in disappointment, on account of the uncertain and fluctuating data on which they must be based.

So important is this question regarded by the medical profession, that the Royal College of Physicians devoted a period of 10 years to its perfection, securing the aid of some 60 distinguished persons, celebrated for their peculiar qualifications. In 1868 the Report of this learned body was printed in 5 languages, and distributed among a number of the most learned men of Europe, with a view to its still further revision, previous to final adoption. In the preface to this vol. the following passages occur:

For perfecting the statistical *regis.* of diseases, with a view to the discovery of statistical truths concerning their hist., nature, and phenomena, the want of a generally recognized nomenclature of diseases has long been felt as an indispensable condition.

The advantages accruing from accurate statistics of disease are likely to be the greater and the surer in proportion as the field of investigation is the wider.

The statistics of a single town may be instructive; but more instruction will be obtained from the compared statistics of various and many towns. This is alike true of different districts in the same country, and of different countries and climates; and the most instructive sanitary statistics would be those which related to the whole of the inhabited portions of the globe.

For the regis. of such statistical facts it is clearly requisite that there should be a uniform nomenclature of diseases, co-extensive with the area of investigation; and taking the largest area, the universal globe, the nomenclature would need to be one that can be understood and used by all the educated people of all nations.

Among the great ends of such a uniform nomenclature must be reckoned that of fixing definitely for all places the things about which medical obs. is exercised, and of forming a steady basis upon which medical experience may be safely built.

Another main use of the statistical regis. of diseases on a wide scale is that it must tend to throw light upon the causes of disease; many of which causes, when duly recognized, may be capable of prevention, removal, or diminution.

When a general and uniform nomenclature of disease has once been carefully framed, when we are sure that medical obs. is occupying itself everywhere with the self-same diseases, the value of statistical T. becomes very high, as representing the course of events in disease under various circumstances of time, place, season, climate, manners and customs, age, sex, race, and treatment.

This general, or common, or *standard* nomenclature need not be imposed upon every nation and people as its proper nomenclature. It could not. It would be unintelligible by the people at large, and embarrassing to those by whom the necessary returns must be made. But the nomenclature proper or peculiar to each country, and which may be called its *national* nomenclature, should be readily convertible into the *standard* nomenclature.

Suggestions are then made as to how this process may be carried out in practice. Next the following :

When fixed names have been given to diseases, then classification becomes a matter of importance. A good classification aids and simplifies the regis. of diseases; helps towards a more easy comparison and knowledge of them, and towards the storing of experience respecting them; and facilitates the discovery of general principles from the collected, grouped, and compared phenomena.

But a good classification is a very difficult matter. *Diseases might be classified according to their symptoms; to their causes; to their intimate nature; to the tissues or the systems of the body that are affected; or to the parts of the body as they lie anatomically.* After much consideration, the Committee have resolved "that the proposed classification of diseases should be based upon *anatomical considerations.*"

In subservience to this anatomical distribution, diseases may also be grouped as being *general* or *local*. General diseases are such as affect the whole frame rather than any special part of it. Local diseases are such as occupy special parts of the body. General diseases may be conveniently divided into two sections. . . . Sec. A. comprehends those disorders which appear to involve a morbid condition of the blood, and which present for the most part but not all of them, the following characters. They run a definite course, are attended with fever, and frequently with eruptions on the skin, are more or less readily communicable from person to person, and possess the singular and important property of generally protecting those who suffer them from a second attack. They are apt to occur epidemically. . . . Sec. B. comprises for the most part disorders which are apt to invade different parts of the same body simultaneously, or in succession. These are sometimes spoken of as constitutional diseases, and they often manifest a tendency to transmission by inheritance.

It is satisfactory to find this learned body regarding the labours of Dr. Farr. Here is what they say thereon :

In the English list of names it seemed desirable that as little deviation as possible should be made from those employed by the Reg.-Gen. of Eng.; otherwise his settled plans, and his forms of returns, which have been followed for 30 years, would require to be remodelled; the comparison of future with past returns would be made difficult and perplexing, if not impossible; and a damaging break would be caused in evidence which becomes more and more trustworthy and valuable in proportion as it is prolonged and continuous.

It ought to be recorded that the Epidemiological So. was largely instrumental in inciting the College of Physicians to the important work here described. It is proposed to revise the nomenclature and classification of diseases decennially, on such points and in such details as shall seem necessary. The total number of diseases and specified injuries enumerated is 1146, commencing with "smallpox," and ending with "foreign substances in the cellular tissue."

In 1869 the Reg.-Gen. notified to the medical profession his desire that they should specify the several forms of fever in accordance with the preceding nosology.

Dr. T. L. Nichols, in his *Human Physiology*, etc., 1872, says :

The nosology, or classification and naming of diseases, now in vogue, is convenient, and relates them to their causes. The distinction between organic and functional diseases is scarcely necessary. Every organic disease must also be functional; every functional disease must be really organic, though there may be no perceptible lesion or change in the part. And no so-called functional disease can long exist without becoming organic, and in most cases perceptibly so—though changes in the brain and nerves are often difficult and sometimes impossible to detect.

He then passes in review Dr. Farr's classification of diseases, and adds that he considers a large proportion of them are "avoidable."

Throughout this work we adopt the classification of Dr. Farr, as used by the Reg.-Gen. in his Reps., unless the contrary is expressly stated. [DEATHS, CAUSES OF.] [DISEASES, REGIS. OF.]

DISEASES, DEVELOPMENT OF.—Any investigation into the development of diseases must necessarily take the shape of a scientific inquiry, and as such is beyond our scope. It is possible, however, to follow the labours of the orig. investigators in this branch, and reduce their doings to the comprehension of those who make no claim to be votaries of science. Our treatment of the subject of DISEASE would be incomplete unless almost the latest teachings on this most important subject were passed in review. The task is made

easy for us; for Dr. Farr has already been over the ground, and upon him we must mainly rely.

Dr. Edward Smith, M.D., in his *Health and Disease*, etc., 1861, says:

Disease is, in its principal forms, an exaggeration of a natural tendency then existing in the human body—a tendency which only becomes disease when carried beyond a certain limit. Thus we find that a person of feeble habit is especially liable to disease in which exhaustion is a prominent feature; and one of plethoric habit is unusually exposed to congestive and inflammatory diseases.

In the 30th Rep. of Reg.-Gen., pub. 1869, there is contained a general survey of the later investigations, which we now place under contribution. Reviewing the "causes of death" for 1867, in which year the most recent outbreak of *smallpox* had begun to show itself, Dr. Farr says:

It is impossible, in the present state of science, to reduce under any simple law the phenomena of disease development; but disease development is evidently associated with the life development of species, and has with it some analogies. It is, for instance, found by the *English Life T.*, that of 1000 children born alive, 703 live to the end of the 10th year, 297 die in the 10 years of current life; and the deaths, frequent at first, become less frequent as the age of puberty is approached. The deaths run down rapidly from 149 in the first year to 5 in the tenth year of life; and they are the results of many types of disease, springing up in a certain order. The rate of death is, under the same conditions over a series of years, nearly constant. *There is a determinable law of morbidity, as there is a determinable law of mort.*

While the living units of a generation have fallen in the proportion of three-fourths, their constituent elements have augmented by growth; thus while, according to the determinations of M. Quetelet, the weight of 703 children of the age of 10 years is 17,702 kilogrammes, the weight of 1000 children at birth is only 3055 kils.; and going back to the ova, of which 1,000,000 would not be of the bulk of a cubic inch, or still further to their germ cells and sperm cells, which are microscopic points, we arrive at the elementary units at which these 1000 live-born children are the survivors. The embryo in its development is subject to casualties which prob. increase as we approach its origin. But with this we have nothing to do. It contains, in little, elements which it has derived from both its parents, and which will or may reproduce their nature, the nature of their ancestors, and, what is more immediately to our present purpose, the diseases by which they perished. To explain various phenomena in reproduction hitherto inexplicable, Mr. Darwin advances the theory of *Pangenesis*, in which he assumes that all the organs of the parents are represented by gemmules in the embryo. It is a species of atomic theory of biology. Adopting the hypothesis for the moment, let us suppose that certain gemmules or corpuscles, or "germinal matters," are in the system of a child, capable of becoming the *smallpox* "granulations" of Chaveau, alone or after coalescence with the granulations of a *smallpox* patient, then it is conceivable that their metamorphosis, having exhausted the material, may leave the system insusceptible of any further invasion. [This is in explanation of the fact that as a general rule *smallpox* occurs only once in life.] The same reasoning will apply to measles, scarlatina, typhus, and other types of disease not recurrent.

The human frame is built up of molecules passing through the evolutions which constitute the various phases of human life. But these molecules are completely deranged by other molecules of lower forms of life, such as the *smallpox* "granulations," *Varicellads*, as they may be named, which convert variable quantities of the substance of the child's body into their forms, to be finally transformed into pus or into other corpuscles, according as the child's life survives or succumbs in the struggle. Each zymotic disease is generated, we may conceive, by species of living molecules, which may be of a two-fold nature, bearing some such relation to each other as the germ and sperm plasms of plants and animals, and becoming proliferous after coalescence, give rise to the varied forms of epidemic disease. The danger of bringing great numbers of people into close proximity is well known; it evidently increases the chances of the coalescence, propagation, and diffusion of the various active disease molecules.

The life of these zymotic generations is the death of the elemental part of the human organism; and yet their development depends on its existence. This to some extent limits epidemics. The Black Death destroyed according to some accounts half the pop. of Eng.; and the very force of its zymotic principle destroyed the pasture on which the death fed; it put an end to a mass of people living; and to this extent at least it diminished its own mass; it burnt up in a few years its elements in those surviving; and it encountered other organizations, whose career it could not arrest. So every year recent epidemics subside on this ground; or they are limited by the operation of conflicting disease molecules. For if there is a struggle for existence among the visible forms of life, and if the struggle is the severer, the nearer those forms are allied, is there not also the same struggle among the elementary independent particles of life? Theirs is also a struggle for subsistence. . . .

The spread of *smallpox*, scarlet fever, and diseases of that kind, is analogous to many chemical and natural phenomena. Thus a spark falls, the fire spreads, and a city is in flames. The process of combustion, like a plague, is propagated. Atoms of hydrogen and oxygen combine the instant they touch a kindred flame, and combustion goes on self-sustained. Water is the product. But the flame may be kindled by other elements in combustion; and water will not generate water; not so with fermentation. A little leaven leavens the whole lump; and the leaven left propagates other leaven. Yeast in wort converts its sugar into alcohol; wines ferment and undergo various changes; so do milk, butter, cheese, and other animal products; each fermentation has at least one specific chemical product, be it alcohol, acetic acid, lactic acid, or butyric acid; and also one ferment. . . .

Through self-propagating chemical action, as instanced in combustion, we enter the region of fermentations, where there is also chemical combination, but in dependence on the action of living corpuscles on lifeless matter of organic origin.

Again, we find living molecules in living animals inducing series of changes in the cosmical life, as for example in the ox, or in the silkworm. This differs from fermentation; it is a case of strange corpuscles at work in the midst of the constituent corpuscles of a living being. *The struggle and the re-action of the conflicting elements produce the phenomena of diseases, such as smallpox.* Granules of vaccine lymph, for example, inserted in the arm of a child, give rise to heat, swelling, redness, pustules, maturation, cicatrix; in cows they produce a disease of another form, cowpox; in horses they give rise to grease. The corpuscles are specific in their nature, as is shown by the reactions, nearly uniform, which follow in the same animals; reproducing themselves in the same structures; and giving rise to indelible modifications of the corpuscles (biads) of which individuals affected are built up. The diseases of this nature are called zymotic diseases; the peculiar processes zymoses; to distinguish them from fermentations, with which they have more points of contact than they have with combustion, or any common propagated chemical action. . . .

Finally we arrive at a more popular view of this subject:

Each disease has its peculiar germinal matter; which can sometimes be isolated, as in the case of *smallpox*, cowpox, syphilis, glanders, purulent ophthalmia, cholera; while in other cases, as in

influenza, its existence is assumed by analogy and hypothesis. It is useful for the sake of explanation and discussion to give these various matters names; thus the vaccine lymph is called *vaccinæ*. . . .

The zymotic elements differ essentially in their powers, but it is not likely that they can all be distinguished by the microscope. They are known by their effects. By them and by other causes, out of 1000 born in Liverpool, 518 children were destroyed in the first 10 years of their life; some by smallpox, many by measles, scarlatina, and whooping cough, many by typhus and enteric fever; one disease prevailing in one year, another disease prevailing in another, but still yielding the like fatal results. This represents what Dr. Watts found at Glasgow long ago. Out of 1000 children born in London, 351 die under 10 years of age by zymotic diseases and other causes; the deaths are less by 167 than the deaths in Liverpool. How much less is the loss of life by these diseases in the healthy districts of England! There, out of 1000, only 205 children die in the first 10 years of life. The enormous difference cannot be ascribed to vaccination, as common in town as in country; the protection of life against smallpox alone leaves it still at the mercy of the other dangerous diseases of the insalubrious city. *There the conditions are in favour of disease-life, and in the highest degree unfavourable to human life.*

Protection against smallpox, and against all forms of imported disease, if that were practicable, should not be neglected; the isolation of the invaded individual; the destruction of the secretions by chemical agencies; chlorine, ozone (permanganate of potash), carbolic acid, sulphurous acid, vinegar, camphor, and other substances found by experience to be destructive or prejudicial to the zymotic elements, should all be brought into play. These elements are causes of death; but an order of causes lies still higher.

The primary object to aim at is placing a healthy stock of men in conditions of air, water, warmth, food, dwelling, and work, most favourable to their development. *The vigour of their life is the best security men have against the invasion of their organization by low corporeal forms of life:* for such the propagating matters of zymotic diseases may be held to be. Vaccinate by all means, but at the same time provide streets, spaces, dwellings, water, and drainage. Do not leave the dirt in rookeries, in pits, in dunghills.

If we ascend from zymotic disease to its generating element, and from this to bad dwellings, bad habits, and bad municipal organization, causes are often found lying beyond these, in bad laws. . . .

Dr. T. L. Nichols, in his *Human Physiology*, etc., 1872, speaking of Miasmatic Diseases, "which are caused by some taint, germ, or poison, in the atmosphere, acting upon an impure blood and weakened nervous power," says they have all a similar character, and adds:

What we call disease—the fever, the pain, the hurried circulation, the hot skin, the eruptive action—is a process set up by nature to expel the morbid matter from the system. When that matter comes to the surface, and is cast out, or when the body is purified by the skin, lungs, the action of the bowels, in whatever way, the disease is cured. When that action fails, the poison falls upon the brain, or paralyzes the action of the nerves of organic life, the result is death.

DISEASES, GEOGRAPHICAL DISTRIBUTION OF.—Under CLIMATE we have noted some of the variations in health and longevity which accompany variations in it; while under DENSITY we have shown another set of facts. In the present art. we shall show that the geographical distribution of diseases has some very marked outlines, which it is most instructive to follow.

The German writers appear to have been the first who treated of this subject. In 1792-5, Dr. L. L. Finke pub. in Leipzig: *Versuch einer allgemeinen medicinisch-praktischen Geographie*. In 1813 Dr. T. Schnurrer pub. in Stuttgart: *Geographische Nosologie, oder die Lehre von den Veränderungen der Krankheiten in den verschiedenen Gegenden der Erde, in Verbindung mit physischer Geographie und Naturgeschichte des Menschen*; and in 1823-25 he pub. in Tübingen: *Die Krankheiten des Menschengeschlechts historisch und geographisch betrachtet*.

In the *Edin. Medical and Surgical Journal*, 1832 [vol. 38], appeared a paper by Henry Marshall, Deputy Inspector Gen. of Army Hospitals: *Sketch of the Geographical Distribution of Diseases*. The author says:

A considerable majority of the diseases found in our nosological systems exist in a greater or less degree over the inhabited surface of the globe. In some portions, however, of the earth's surface particular diseases occur much more frequently than in others; and there are great divisions of the globe where certain specific diseases never or very rarely appear. The causes of the prevalence of diseases in one part of the world, while they are not found in another, are frequently involved in great obscurity. Sometimes they seem to depend upon the influence of meteorological phenomena; but they frequently happen where no satisfactory origin can be assigned. Wherever mankind exists, there diseases of one kind or another will occur; whatever care may be taken to obviate its causes, Death will have its victims; and prob. from 1 to 5 p.c. die ann., not only among the savage races, and other classes who undergo great privations, and want of skilful medical attendance, but also among those orders of society which are furnished with every comfort and luxury that wealth can procure.

The leading distinction between the diseases of temperate and intertropical climates appears to be, that in the former the viscera of the head and thorax, or the nervous and respiratory systems, are chiefly affected; while in the latter the abdominal viscera, or the organs of assimilation, chiefly suffer. Fevers in warm climates seem chiefly to affect the stomach. . . . In cold climates the brain and spinal marrow are commonly principally implicated, while the stomach more rarely suffers. Tropical diseases differ also from those of temperate climates by their violence or great proportionate fatality, and the extreme rapidity of their progress.

Independently of the difference of latitude, and the difference of temperature resulting therefrom, other causes, more or less connected with the difference of longitude, modify the prevalence of diseases; inasmuch as those which prevail in one hemisphere are often not of frequent occurrence in another, although in the same latitude.

The writer then furnishes a series of obs. illustrative of the position he has taken. The subject is continued in vol. 44, 1835.

In 1837 Dr. A. S. Thomson pub. in Edin.: *Thesis on the Influence of Climate on the Health and Mort. of the Inhabitants of different regions of the Globe*.

At the Brit. Asso. in 1850 Mr. A. Keith Johnston read a paper: *On the Geographical Distribution of Disease, as indicating the Connexion between Natural Phenomena and*

Health and Longevity. In this paper, which was illustrated by maps and diagrams, the author gave general views of the distribution of endemic disease over the globe, showing by means of colours the regions visited by particular diseases, and the proportionate amount of mort. occasioned by each among natives and Europeans. He explained, by means of diagrams, the effect of climate in the production and extension of disease, as exhibited in the moist and marshy districts of tropical regions: that, for example, remittent fever increases progressively with the increase of temperature from north to south, as strikingly shown by the returns of health in the army of the U.S. of America. He stated that in order to judge of the effects of climate, it is necessary to compare the amount of sickness and mort. among the indigenous pop. of a country with that of strangers to the soil; that in India the average amount of mort. among European troops is nearly three times as great as among natives. He then drew attention to the remarkable difference in the health of the army as compared with that of the navy, and with the civil pop. of a country. After adverting to the successful means that have been adopted for the prevention of disease, and the greatly increased value of human life thence resulting, he intimated his intention to follow up the important inquiries now commenced, with a special view to the subject of Life Ins.

In 1856 Mr. A. Keith Johnston returned to the subject in a contribution to the Epidemiological So. of Lond., which is pub. in its *Transactions* for that year. The author says:

The following notes are devoted to a consideration of the extent to which the human family is affected in the enjoyment of health and the preservation of life by physical or natural causes. The safest guide in such a field of inquiry is statistics, or the accumulated stores of carefully observed and accurately recorded facts, regarding the occurrence of disease in its different forms, its extension or limitation in space, and the periodicity of its recurrence. But reliable tables of sickness and mort. do not exist, except for very limited and widely separated portions of the globe. In the absence of positive data, however, a knowledge of the physical conformation of the earth's surface, and of the meteorological agencies to which it is exposed, affords a means of arriving at certain prob. conclusions regarding others of which little or nothing is known.

Similarity of geological formation indicates a similarity in the diseases of a country, as seen in the localities visited by malarial fevers. A certain amount of heat, and a sufficient time for its manifestation, are necessary for the development of certain maladies. In the West Indies the period of disease follows the course of the sun, the unhealthy season occurring at opposite times on the northern and southern sides of the equator. As the sun proceeds northwards in the ecliptic, so the sickly season advances from the southern to the northern islands. In the Mediterranean the mort. is doubled in the hot season, between July and October; and in the southern states of North America the posts of the army are regularly abandoned as the hot or sickly season approaches. But in temperate regions the order is reversed. Throughout Europe generally the maximum mort. occurs at the end of winter, and the minimum in the middle of summer. . . .

As elevation above the surface causes a corresponding reduction in the temperature and in the pressure of the atmosphere, so those diseases which are prevalent at the level of the sea, in cold or temperate countries, are found to be represented by the same, or similar ones, at elevated points in tropical regions where a correspondingly low temperature prevails.

In tropical climates, especially, electricity in its different forms is believed to have a powerful influence on the morbid affections of the human frame; and during the cholera epidemic in Britain, the obs. at Greenwich show that the atmosphere was always deficient in positive electricity when the disease was present.

He then discusses the "regions of disease corresponding with seasons and zones of climate;" and hereon he says:

The surface of the globe may be divided into belts or zones, distinguished by great leading characteristics; as (1) the torrid zone, or belt of greatest ann. mean temperature, characterized by the class of diseases which includes *dysentery*, *yellow fever*, *diarrhoea*, *malarial fevers*, and affections of the *liver*; (2) the sub-torrid and temperate zone, of which *inflammatory diseases*, represented by *typhoid fevers*, are the characteristic maladies; and (3) the sub-temperate, sub-arctic, and arctic zone, characterized by *catarrhs* and *colds*.

These several divisions are then enlarged upon as follows:

1. The immediate dependence of the first class of diseases on heat and moisture, as important exciting causes, is shown by the circumstance that its maximum intensity corresponds with the countries situate under the line of the greatest ann. mean temperature, the assumed equator of heat of the globe (82° Fahr.); which line also intersects the region of greatest aqueous deposition. From this line to about lat. 35° north, marked nearly by the line of 77° Fahr. in July, and on the boundary of the second zone, the amount is only 14 p.c.; and at the Cape of Good Hope, lat. 35° south, it is only 3 p.c. As far as can be ascertained, the mort. from the entire classes within this zone amounts to 75 p.c.—the first and second causing 53, and the third 18 p.c. of the whole. The same law of disease with the lowering of temperature is apparent in the seasons of their recurrence. In a series of dysentery epidemics, narrated by Ozanan, 36 occurred at the end of summer, 12 in autumn, and only 1 in winter. Of 73,000 seized with dysentery in Bengal, 7000 were attacked in the warm and humid season, 4500 during the hot and dry season, and 2400 during the cold season. In spring these diseases are more inflammatory in their character, and in autumn more putrid.

The northern limit of this class of disease is prob. the Bermudas, lat. 32° north, in the Atlantic; and California, lat. 38°, on the Pacific ocean in America. In Asia it extends to near Peking, lat. 40° north; and in Europe to the south of Spain. Its southern limits are—in America, Buenos Ayres, lat. 34° south, on the Atlantic, where, however, it is not severe; and Lima, lat. 12° south, on the Pacific. In Asia the southern limit includes Aracan, Ava, and Ceylon, Borneo, and the other islands of the Asiatic archipelago; and thence it extends to the northern shores of Australia. In Africa it includes the island of Madagascar. Within these limits the principal centres of these diseases are, in America—the shores of the Gulf of Mexico, the West India Islands, and the northern portion of South America; in Asia—India, China, Borneo, Ceylon; in Africa—the countries around the gulf of Guinea on the west, Madagascar and Mozambique on the east, Algeria and the shores and islands of the Mediterranean on the north. Little is known of the perpendicular distribution of these diseases, except that in Mexico they are prevalent at an elevation of 7000 or 8000 feet; and in south-eastern Asia they cease at an elevation of 6000 or 7000 feet above the sea.

2. In the inflammatory region or zone—typhus fever, in its varied forms of gastric, bilious, enteric,

etc., fever, takes the place of the yellow and malarial fevers of the torrid zone; and in consequence of fewer of the pop. being cut off with these, more fall victims to inflammatory affections, of which consumption is the type. But that this latter form of disease is not peculiar to this region, or rather that it becomes more fatal as we approach the tropics, is proved by the fact that in England consumption is only fatal to 3·8 out of every 1000 living; while Boston (U.S.) loses 4·0, Baltimore 4·1, Philadelphia 4·2, New York 4·9, and New Orleans 5·6 out of every 1000 living.

In North America and Europe, the southern boundary of this group of diseases coincides generally with the northern boundary of the first class. In S. America it prob. includes Patagonia. In Africa it includes the Cape Colony; and it embraces the south of Australia, Tasmania, and New Zealand. In Asia it is uncertain how far it extends to the eastward. Its northern limit in America includes part of Nova Scotia and Newfoundland; and in Europe the northern boundary includes the Brit. Islands, Norway, and Sweden, to lat. 60° north, whence it appears to follow a south-eastern direction, corresponding nearly with the ann. isotherm of 41°, till it gradually declines towards the borders of Asiatic Russia. These, however, are only to be considered as preliminary indications.

3. The boundaries of this group of diseases, which is characterized by catarrhs, include the whole of Europe to the north of the preceding class. In America it extends south of Boston and New York, including the district of the Canadian lakes. Thence it continues north-west nearly in the line of 41° ann. temperature. Although very little is known of the diseases of Central Asia, yet, when we consider the elevation of the surface, the vegetation, and the conditions of climate, we may assume that this class of diseases extends there to about lat. 45°. Iceland is the best known locality of this zone, and may therefore be taken as its representative. The island is visited by catarrh every year, in spring or in early summer. It is also visited at short intervals by catarrhal fevers—a true influenza, which usually has a great effect on the mort. Pallas says that the majority of Icelanders die before the age of 50, from asthmatic or catarrhal affections of the lungs; and Crantz affirms that catarrh is a very prevalent disease in Greenland. Catarrh is also common in Labrador. At Okhotsk, in Siberia, it is accompanied with difficulty of breathing; and a cough called “Ho” is endemic among the Samooids.

The author then proceeds to a “sketch of the climatology and diseases of the different quarters of the globe,” giving many statistics, and much information of the greatest interest; but we cannot follow him further. It may be useful to state here that the T. given under DEATH-RATE as from the *Ency. Brit.* (8th ed.) were furnished by Mr. Johnson.

In 1857 M. Boudin pub. in Paris: *Traité de Géographie et de Statistique Médicales, et des Maladies Endémiques*, in 2 vols. This is the most complete work which has yet appeared upon the subject.

Dr. Wm. Aitkin, in his *Science and Practice of Medicine*, 3rd ed. Edin. 1864, says:

As the physiological conditions of plants and animals vary according to different degrees of latitude, or rather with the different lines of equal temperature and moisture north and south of the equator, so do the pathological characters of diseases differ; and races of men are influenced as to health in proportion as they migrate from the land of their birth. It is the ascertained facts in meteorology and climatology of our globe which will help to explain the geographical limits of particular diseases, and their regulated distribution according to atmospheric temperature and moisture, the density and electricity of the air, and the vegetation with which they are surrounded. Such causes determine some of the laws by which diseases may be geographically distributed; but other concurrent causes must also be taken into account in considering the special diseases of countries. For example, topographical situation, geological nature and elevation of soil, and state of the vegetation; in short, physical climate, generally and properly so called, combined with the habits of the people, their attention to personal hygiene and general sanitary arrangements, all concur to stamp the diseases of certain countries with a special character, and facilitate or retard their propagation.

These are facts which show that certain miasmatic and other diseases are so completely under the influence of temperature that they are susceptible of being arranged systematically in zones of geographical distribution. The diseases susceptible of being thus classified are those of a contagious type, which require a certain range of temperature and concurrence of physical conditions for their prevalence and propagation. They are chiefly yellow fever, plague, typhus fever, typhoid fever, and cholera. The geographical distribution of these diseases into zones, north and south of the equator, seems to be regulated, in a great measure, by relative degrees of temperature and humidity, in the several places where they prevail in America, Africa, and Europe. The causes of these diseases, however, have not been found to be solely or exclusively atmospheric, either as regards diseased actions being due to temperature and humidity of the air, or to its relative daily and ann. states of density and electricity. Such diseases as have been mentioned, and whose realms are bounded, in a great measure, by isothermal lines, are not only associated with locality and the vegetation produced by atmospheric causes of heat and humidity; but they also follow the physiological habits of the several animal inhabitants of the different latitudes. Malarious fevers, and yellow fever, plague, typhus, and typhoid fevers, have particular climates and zones where each predominates, and beyond the limits of which the disease is rarely, if ever, produced, unless change of seasons gives rise to a state of climate analogous to that which is due to the latitude and position of these localities.

In a lecture delivered at St. Thomas's Hospital in the early part of 1871 on the “Geographical Distribution of Disease in E. and W.” Mr. Haviland drew attention to the importance of the study in reference to L. Ins. A series of maps showing the localities where certain causes of death, such as heart disease, consumption, cancer, scrofula, etc., are most prevalent, would, he said, be an invaluable aid to the medical examiner, as by these means he would be enabled to form at a glance a distinct idea of the character of the diseases which are likely to pervade the families of proposers living in certain localities, and with this knowledge he would be all the more careful in his examination of those special organs likely to be affected. The first part of Mr. Haviland's work, accompanied by a large coloured map of the “geography of heart disease in E. and W.,” now pub., shows some remarkable and hitherto unsuspected facts relative to the cause of the great mass of heart disease in this country, especially as to its frequent origin in the endemic form of rheumatism, which prevails in sheltered valleys never thoroughly freshened by the prevailing sea winds. [HEART DISEASE.]

Later in the same year the same learned writer commenced to pub., in the *Brit. Medical Journal*, a series of “Lectures on the Geographical Distribution of Diseases in E. and W.”

The one on phthisis is strikingly illustrated by a coloured map, and we append some of the conclusions which have been arrived at. 1. More than a quarter of a million of females died from phthisis during the decade 1851-1860. 2. The divisional distribution of heart disease and phthisis is shown to be the reverse of one another. 3. The most exposed divisions have the highest mort. in phthisis, and the lowest in heart disease. 4. The most sheltered divisions have the lowest mort. in phthisis, and the highest in heart disease. 5. Lond. and the West Midland division have the lowest female mort., being only 24·9 to every 10,000 living. 6. The division having the highest mort. is the North-Western counties. This fact is coincident socially with the engagement of the pop. in cotton and other factories, and climatically with exposure to the direct and powerful influence of the north-westerly winds. The maps of heart disease and cancer show an exceedingly low mort. from these causes in this division. 7. In heart disease and cancer Wales has a remarkably low mort., whereas in that of phthisis a high mort. is depicted. It ranks next to that of the north-western division, its female death-rate from phthisis being 32·0 or 4·3 to every 10,000 living *above* the average.

The Rep. of the Census Commissioners for Scotland, 1871, deals very fully with the mort. of Scot. during the preceding 10 years, and especially enters upon the geographical distribution of disease. [CLIMATE.] [DISEASES, INFLUENCE OF LOCALITY UPON.] [LOCALITY.] [OCCUPATIONS.] [SEASONS.] [VITAL STATISTICS.] [WEATHER.]

DISEASES, HEREDITARY TRANSMISSION OF.—Physiologists assure us that predisposition to any form of disease, or even any malformation, may become an inheritance. Thus disease of the heart is hereditary; so are tubercles in the lungs; so also are diseases of the brain, of the liver, and of the kidneys; so are diseases of the eye and the ear. General maladies are said to be equally inheritable—as gout and madness. So longevity on the one hand, and premature deaths on the other, go by descent. In this view, the importance of FAMILY HISTORY receives, as it were, a new light.

The diseases which are most commonly regarded as hereditary, placed in alphabetical order, are the following: asthma, calculi, cancer, consumption, dropsy, epilepsy, gout, heart disease, insanity, liver diseases, rheumatism, syphilis, worms. Some others are included by different authorities. We deal with the subject from an Ins. point of view only.

Dr. Stephen H. Ward, in his *Medical Estimate of Life for Life Assu.*, 1857, says:

Heart diseases are frequently hereditary; but their connexion with acute rheumatism may explain this. Cancer is another malady hereditarily transmitted, and to which somewhat similar rules may be applied as in consumption. The age at which it is likely to develop itself, the symptoms which would indicate implication of any special organ, and the characteristic aspect, will not be lost sight of. Articular rheumatism, again, is in many instances an inheritance. Of 165 cases of arthro-rheumatism, collected by Chomel, Patouillet, and Piorry, 81 were proved hereditary. Inheritance, again, is not only the most frequent predisposing cause of gout, but is in many cases the exciting cause also, where the habits of individuals, as regards exercise and temperance, are unexceptionable. Scudamore found that of 522 patients, 322 could trace the disease to either parent or grand-parent, uncle or aunt.

The liability to certain abdominal, and especially to diseases of the liver, would appear to be hereditarily transmitted. . . . Calculi and worms would also appear to be hereditary. Many cerebral affections, as apoplexy, epilepsy, and insanity, are distinctly hereditary. Cerebral hæmorrhage occurs in certain families, generation after generation. Apoplexy, as a general rule, shows a preference for those descended from apoplectic parents, especially where the conformation is the same—or rather it is this with its liabilities which is inherited. . . . Epilepsy has been shown by a considerable accumulation of facts to be hereditary. Insanity, or the special type of constitution which involves it, is not only inherited, but shows itself in the same form in the members of the same family. The attack frequently, too, occurs at the same time of life in the offspring as in the parent.

Mann, in his *Medical Statistics of Life Assu.*, 1865, reviews the diseases which are regarded as hereditary, and dwells especially on asthma and rheumatism, with their correlations. He further says:

The disposition to fatty degeneration, of which the early appearance of the *arcus senilis* is a recognized symptom, is no doubt hereditary. This must be remembered in our consideration of family histories in connexion with L. assu., whether its relationship with rheumatism should hereafter be estab. or not.

Dr. Carroll, in the N. Y. *Medical Gazette*, 19th Nov., 1870, takes a somewhat modified view. He says:

Diseases themselves are, with the exception of syphilis, seldom, if ever, directly inherited: but a tendency to them is; and whether this tendency is to remain latent during a long lifetime, or to be early developed into fatal action, will depend to a great extent upon external circumstances. A person with a constitutional liability to one form of disease may be capable of resisting influences directed against his stronger organs, as, for instance, the tendency to hepatic derangement will be aggravated by residence in a dry warm climate, and held in abeyance by a cool moist one; while the scrofulous diathesis may remain dormant in the former condition, but soon succumbs to a bleak damp atmosphere. The chances in the potential consumptive will be widely different if he lead a sedentary life in a crowded city, or an active one in the pure air of the country. Predisposition to heart disease may be called into activity by business anxiety, or emotional excitement of various kinds, which, under more favourable circumstances, would never have been expected to exist.

Dr. E. H. Sieveking, in his work just from the press, *The Medical Adviser in Life Assu.*, 1874, devotes a chapter to "Hereditary Influences," treating the subject with much erudition. We must be content with a single passage:

Wherever hereditary diseases appear in a well-marked form, the observer will not fail to recognize them and estimate their bearing upon the longevity of the individual. But in connexion with L. assu. we have to deal ordinarily with a person professing to be in good health, and in whom the faintest indication of a taint must be sought for in order to estab. its influence upon his constitution and upon accidental diseases that may arise. The hereditary taint of syphilis has long been a subject of earnest discussion among medical men, and modern research has traced numerous lesions of vital organs to

its influence, though these in the adult are prob. more often due to the remarkable latency of the poison for long years after primary infection. In many cases the effects of scrofula and some forms of inveterate syphilis resemble one another so closely as to have caused them to be regarded as identical by authors of eminence. . . . It is not improbable that with the advance of chemistry and of microscopy, we may be able to recognize the existence of this and other taints, through direct evidence attainable by an examination of the tissues, and especially of the blood.

There is much more in this same work which deserves, and will certainly receive, the careful attention of the medical examiners for L. Offices.

The subject will be further dealt with incidentally under DROPSY; FAMILY HISTORY; HEART DISEASE; RHEUMATISM.

DISEASES, HYPOTHESES CONCERNING.—It is but natural that in anything surrounded with such mystery as attaches to the origin and development of disease, there should be set on foot many hypotheses. More exact scientific knowledge has dispelled, and is dispelling, most of these. It is the same in many things. Hypothesis gives way to theories based upon extended observation. Theory, when rightly based, leads up to demonstration and to certainty.

Under DISEASE we have noticed some of the hypotheses which have obtained regarding it. In separate articles we notice the *Germ* and the *Graft* theories of Disease [DISEASE, GERM THEORY OF], [DISEASE, GRAFT THEORY OF]; under DISEASES, DEVELOPMENT OF, we present the latest general theory on the subject. [LIFE, HUMAN.]

DISEASES, INFLUENCE OF AGE UPON.—We have seen under DEATH, AGES AT, the proportions of the entire deaths of the pop. which take place at different ages; but a far more interesting part of the inquiry consists in ascertaining what are the main causes of deaths at those several ages; that is to say, which diseases are more fatal to the young; which to the middle aged; which to the old. It will be seen that such an inquiry might take a very wide range; our present purpose, however, is rather to indicate the scope of the inquiry, and present some few well-ascertained results by competent observers, than to enter upon any speculative details.

Herr Hopf has constructed the two following tables, based upon 25 years' mort. experience of the *Gotha Life Assu. Bank*, of which he was Man., extending over the period 1829-54 [*Assu. Mag.* vi. p. 8].

I.—Intensity of the Diseases for the different classes of age in per-centage of the number of Deaths in each class of age:

Diseases and other causes of Death.	Ages at Death.						All Ages.
	15-30	31-40	41-50	51-60	61-70	71-87	
Fever	27'16	21'38	17'74	15'63	11'86	10'23	15'87
Influenza .....	.....	1'93	1'08	0'91	1'93	1'99	1'39
Asiatic Cholera .....	.....	2'89	2'52	2'73	2'89	2'27	2'65
Exanthematic Diseases	2'47	0'80	0'18	0'08	0'10	.....	0'24
Local Inflammation	16'05	15'27	13'23	11'91	10'90	8'24	12'25
Gout and Rheumatism	4'94	3'22	2'88	2'43	3'28	1'42	2'81
Chronic D. of the Resp. Organs	28'40	26'21	21'51	13'73	8'10	2'27	15'45
Chronic Abdominal Diseases	1'23	9'16	10'80	12'22	14'65	7'67	11'46
Organic D. of the Brain .....	.....	2'41	2'43	2'50	2'03	1'42	2'23
Organic D. of Spinal Marrow .....	.....	1'13	1'08	0'68	1'45	0'57	1'00
Organic D. of the Heart	2'47	1'29	2'43	2'96	3'66	1'42	2'63
Dropsy	3'70	3'86	7'38	10'62	11'76	9'94	8'98
Cancers & Malignant Ulcers .....	.....	0'48	2'70	2'05	2'03	3'12	2'03
Apoplexy	8'64	5'47	9'63	17'68	17'74	16'48	13'78
Old Age .....	.....	.....	.....	.....	5'21	32'68	3'74
Accidents .....	.....	1'45	1'62	1'21	1'06	.....	1'19
Murdered .....	.....	0'16	0'09	0'08	.....	.....	0'07
Suicide	4'94	2'89	2'61	2'58	1'35	0'28	2'21
Capital Punishment .....	.....	.....	0'09	.....	.....	.....	0'02
	100'00	100'00	100'00	100'00	100'00	100'00	100'00

According to Herr Hopf's 2nd T. (which we print on p. 370), for example, the danger or the prob. of dying of dropsy at the age of 51-60 years is for every year, on an average, equal to 2'35 p. 1000; and the danger of being carried off by an abdominal disease at the age of 61-70 years for every year is equal to 6'74 p. 1000. He tells us:

It results further from this T. that the danger of being carried off increases with the advancing ages for almost all diseases,—in rapid proportion for some (for instance, apoplexies), in a less rapid proportion in others, especially the chronic diseases of the respiratory organs; and that only the exanthematic diseases and some organic complaints form an exception at the highest ages. As man in general, after the prime of infancy, is subjected to the danger of death in a degree always higher with the advancing age, the danger of being seized by this or that disease increases with the age; and even those diseases make no exception, the intensity of which diminishes with the advancing age, . . . as, for instance, common fevers and inflammations. This increase of lethality takes place, as in Asiatic cholera, in nearly equal proportion with the rise of general mort.; it proceeds more slowly in other diseases, especially fevers, inflammations, and chronic diseases of the respiratory organs; its

increase is more rapid than the rise of general mort. in other diseases, namely, the chronic abdominal diseases, dropsies, and apoplexies,—as results from a comparison of the figures in T. XII. [that next given] for the single diseases, with those of the last col. for all diseases, or for the general mort.

II.—*Lethality of the Diseases for the different classes of age, in the proportion p. 1000 of the number of lives at risk in each class of age.*

	Ages.						For all Ages.
	15-30	31-40	41-50	51-60	61-70	71-87	
Number of lives at risk for a whole year	11,193	65,378	89,705	59,592	22,562	3,459	251,889
Fever	1'97	2'03	2'20	3'46	5'45	10'41	2'85
Influenza		0'18	0'14	0'20	0'89	2'02	0'25
Asiatic Cholera		0'27	0'31	0'60	1'33	2'31	0'48
Exanthematic Diseases	0'18	0'08	0'02	0'02	0'04		0'04
Local Inflammation	1'16	1'45	1'64	2'63	5'01	8'38	2'20
Gout and Rheumatism	0'36	0'31	0'36	0'54	1'55	1'45	0'50
Chronic D. of the Resp. Or.	2'05	2'49	2'66	3'04	3'72	2'31	2'77
Chronic Abdominal Diseases	0'09	0'37	1'34	2'70	6'74	7'81	2'06
Organic Diseases of Brain		0'23	0'30	0'55	0'93	1'45	0'40
Organic D. of Spin. Marrow		0'11	0'14	0'15	0'66	0'58	0'18
Organic Diseases of Heart	0'18	0'12	0'30	0'65	1'69	1'45	0'47
Dropsy	0'27	0'37	0'91	2'35	5'41	10'12	1'61
Cancers & Malignant Ulcers		0'05	0'33	0'45	0'93	3'18	0'37
Apoplexy	0'63	0'52	1'19	3'91	8'16	16'77	2'47
Old Age					2'39	33'25	0'67
Accidents		0'14	0'20	0'27	0'49		0'21
Murdered		0'02	0'01	0'02			0'01
Suicide	0'36	0'28	0'32	0'57	0'62	0'29	0'40
Capital Punishment			0'01				0'00
Total for all Diseases.....	7'25	9'52	12'36	22'11	45'97	101'78	17'94

Mr. F. G. P. Neison, in his *Contributions to V. Statis.* 1857, says, as the result of an elaborate investigation into the diseases of various classes—mostly members of F. Sos.: “Various diseases have a maximum or minimum effect in destroying life at certain periods.”

In the Supp. to the 25th Rep. of Reg.-Gen., pub. 1864, is contained the following T. for males and females respectively:

I.—*Average Ann. Number of Deaths of Males by different Causes at certain Ages to 1,000,000 Males living of those Ages in England in the Ten Years 1851-60.*

DISEASES.	Proportional Numbers to 1,000,000 living.											
	Ages.—Males.											
	0-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75-85	85 and upw.
All Causes	72433	8510	4881	6689	8829	9574	12481	17956	30855	65332	146671	310083
Smallpox	1047	271	70	105	174	119	69	53	34	27	19	30
Measles	2847	262	32	11	8	5	3	2	1	1	1	...
Scarlatina	4311	1985	461	146	67	39	30	20	15	10	8	...
Diphtheria	431	228	85	39	21	11	12	9	11	14	20	30
Whooping-cough	3246	133	6	1	1	1	1	3	4	1	...	...
Typhus	1401	937	687	858	850	673	649	779	1043	1563	1740	1471
Cholera, Diarrhoea, & Dysentery	5625	233	111	113	180	241	319	492	938	2230	4927	7690
Other Zymotic Diseases	3512	403	179	204	207	324	518	714	1084	1941	3320	4603
Cancer	21	10	8	16	27	63	175	422	931	1504	1734	1860
Scrofula & Tabes Mesenterica	2066	312	250	228	212	160	115	126	143	185	122	91
Phthisis	1329	525	763	2397	4055	4034	4005	3830	3333	2380	977	549
Hydrocephalus	2915	396	105	31	12	7	7	7	8	8	12	...
Diseases of the Brain	12169	607	361	397	440	638	1180	1990	4097	9831	17088	19785
D. of the Heart and Dropsy	426	240	241	322	347	514	1002	1898	4130	8714	12409	10617
D. of the Lungs	11296	585	221	335	545	772	1524	3092	6616	13416	21088	25608
D. of the Stomach and Liver	1470	258	219	268	326	464	890	1664	3032	4837	5246	4375
D. of the Kidneys	66	47	47	77	105	174	292	471	937	2453	4265	4298
D. of the Organs of Generation	5	1	1	3	2	2	4	7	11	19	27	38
D. of the Joints	56	71	93	91	80	61	62	79	113	165	142	91
D. of the Skin	164	12	10	13	14	14	23	43	85	202	407	511
Violent Deaths	1451	643	769	863	949	999	1152	1369	1613	1810	2248	3200
Other Causes	10579	291	162	174	207	259	450	889	2680	14012	70871	225166

The Table may be read thus:—Of 1,000,000 males living in England aged 25 and under 35, 9574 died

annually, on an average of the ten years 1851-60, viz. 119 by smallpox, 673 by typhus, 4034 by phthisis 772 by diseases of the lungs, and so on for the other diseases.

[The diseases included under the head of "*Other Causes*" are gout, noma, mortification, premature birth, cyanosis, spina bifida, other malformations, teething, paramenia, old age, atrophy and debility, sudden deaths, and causes not specified. The majority of deaths from these causes are those of children and of persons of advanced ages. In the year 1860 the number of male children under 5 years of age referred to "*Other Causes*" amounted to 20,188, of males aged 65 and upwards 14,421, and of males of all other ages (5 and under 65) 2998.]

II.—Average Ann. Number of Deaths of Females by different Causes at certain Ages to 1,000,000 Females living of those Ages in England in the Ten Years 1851-60.

DISEASES.	Proportional Numbers to 1,000,000 living.													
	Ages.—Females.													
	0-5	5-10	10-15	15-20	20-25	25-35	35-45	45-55	55-65	65-75	75-85	85 and upw.		
All Causes	62744	8418	5056	7385	8530	9925	12147	15198	27007	58656	134338	289558		
Smallpox	1021	243	76	81	91	68	37	23	14	10	9	20		
Measles... ..	2749	288	44	15	10	8	4	2	2	1	2	...		
Scarlatina	4071	1998	528	154	79	48	31	19	14	11	9	...		
Diphtheria	430	280	124	44	19	15	12	10	9	11	12	15		
Whooping-cough	4003	215	14	2	4	1	4	4	3	2	...	...
Typhus	1434	1077	878	1026	781	627	597	647	888	1279	1435	1273		
Cholera, Diarrhoea, & Dysentery	4809	224	101	109	171	271	372	473	926	2157	4675	7394		
Other Zymotic Diseases... ..	3165	453	179	170	172	204	278	381	683	1549	2663	3685		
Cancer	23	9	9	18	30	141	592	1278	1853	2351	2353	2259		
Scrofula & Tabes Mesenterica	1773	253	214	189	132	120	106	108	136	146	114	69		
Phthisis... ..	1281	620	1292	3515	4289	4575	4175	3120	2383	1635	754	474		
Hydrocephalus	2162	331	98	30	8	6	4	5	5	7	...	...
Diseases of the Brain	9479	558	356	408	434	532	872	1684	3818	8905	15026	16460		
D. of the Heart and Dropsy ...	356	215	272	352	390	603	1118	2052	4558	8916	11531	9347		
D. of the Lungs... ..	9499	607	240	342	413	582	1049	2062	5027	11016	17648	21796		
D. of the Stomach and Liver	1121	245	194	307	406	570	937	1608	2967	4692	4950	3714		
D. of the Kidneys, etc.	38	24	30	43	69	109	151	212	317	485	470	365		
Ovarian Dropsy and Uterus ...	7	3	2	15	46	98	208	290	310	315	256	158		
Diseases of the Joints	53	53	62	61	39	44	56	62	92	121	101	84		
Diseases of the Skin... ..	157	9	8	8	8	12	22	31	75	191	319	404		
Childbirth and Metria ... ..	...	...	1	144	612	886	904	71	...	...	...	...
Violent Deaths	1138	427	164	156	125	127	176	274	382	718	1854	4064		
Other Causes	13885	289	171	196	206	278	446	777	2548	14140	70139	217977		

In Dr. Farr's *Rep. on the Cholera Epidemic of 1866 in England* [pub. 1868, as a Supp. to 29th Ann. Rep. of Reg.-Gen.] a series of calculations was entered upon regarding the ratio of mort. from the cholera during its three chief epidemics, viz. 1849, 1854, and 1866, with the following result :

It is a series in geometrical progression, and may be conceived as representing this principle, that human life loses the power of resisting the zymotic life of the cholera epidemic year by year after the age of puberty; or, what is equivalent, that the lethal power of the epidemic on the organism increases at the rate of 2¹² p.c. Thus for instance 1,000,000 persons of the age of 30 are exposed to cholera, and 1540 of them die; then of the same number of the age of 31 exposed to the same epidemic under precisely the same circumstances, 1573 will die; and to 1,000,000 persons of one year of age older, or 32, the deaths will be 1606. So some force is taken away from the organism every year of life, every second we may conceive, by which its constituents become less able to resist the action of the cholera poison. And the diminution of resisting force obeys a law which is of this nature: the loss is an accumulating quantity, and in the end becomes so great as to leave the life at the mercy of other forms of life, or of other forces. Thus, the mort. at one age being given, the mort. at any other age within certain limits can be calculated.

Dr. Adams Allen, in the 5th ed. of his *Medical Examinations for L. Ins.* 1869, says :

Different ages predispose to different diseases. So also hereditary diseases, according to their kind, may be outgrown, or not arrived at. During the period of increase, extending to about the 25th year (varying, of course, in individuals), the tendency to disease and death is proportionately very great. One-tenth of all children born die the first month. In large towns nearly one-half die before the 5th year. Respiratory and strumous diseases are especially fatal between puberty and the age of maturity—placed at 25. None should be insured before puberty, except at extra rates. Between that period and maturity, the party demands especial investigation of the respiratory and glandular systems. Continued fevers of the typhoid class are also liable to be destructive during this period. The exanthems readily implant the germs of phthisis and other strumous disorders. Rheumatism, if it now occurs, in consequence perhaps of the excessive activity of the sanguineous system, is exceedingly liable to beget organic disease of the cardiac valves, with its subsequent results.

From the 25th year to the 35th or 40th—or age of maturity—the best risks, *ceteris paribus*, are chosen. During this period the applicant stands more, so to speak, on his own individuality. Hereditary predispositions affect him less, and external agencies are easiest resisted when tending to disease. The habits and external influences now require most careful survey.

From the 40th year, at latest, decline commences. Hereditary diseases regain their dangerous tendency, and acute affections are met with less power of resistance. Yet, acute diseases of various forms are less to be dreaded than during the mobile years previous to maturity. The progress of changes in the system is slower, and the tendency is to congestions rather than inflammations; to urinary diseases; to fatty degenerations; to cardiac and other obstructions from undue deposits; to dropsies, apoplexies, paralysees, and the like. [DISEASES, RELATIVE FATALITY OF.] [EXPECTATION OF LIFE.]

DISEASES, INFLUENCE OF CLIMATE ON.—This subject has been treated pretty comprehensively under CLIMATE. The Reg.-Gen. for Scotland said in a recent report that the prevalence of disease of all kinds, and its mort., were "strictly regulated by the weather."
[WEATHER.]

DISEASES, INFLUENCE OF HABITS ON.—Among the causes which have influenced variations in the character or virulence of diseases may, undoubtedly, be classed the *changes in the habits of the people*. While each nation, admittedly, differs more or less from all others in the habits of its pop.; so in the succeeding eras of the same nation very considerable changes in habits also occur. We of the present day look back almost with disgust upon the drinking, rollicking habits of our not very remote ancestors. Again, we all speak of the changes which have taken place in the treatment by medical practitioners almost in our own time; but may it not be that this change of treatment has but followed the changes in the type and character of disease? But there is yet another aspect: the increased knowledge of the present day has enabled physicians to separate conditions which before were believed to form part of one disease. They can also detect disease at an earlier stage than formerly. This subject has been treated learnedly by many writers, but by none more so than by Dr. Edward Smith, M.D., in his *Health and Disease, as influenced by Daily, Seasonal, and other Cyclical Changes in the Human System*, 1861, from which we take the following passages:

We think we have given in the preceding pages abundant evidence to prove that the conditions under which men live, and under which they therefore acquire disease, have greatly changed, and hence to our mind it must follow, *that the form and the type of disease must necessarily have changed also*. This forms very strong presumptive evidence in favour of the view of the opponents, and to this we must add the talents and the truthfulness of the men who practised on the old plan. In this argument we may admit that the nature of disease would vary somewhat in different localities and in different persons, and it would be wrongly treated in many instances, just as we find these conditions to occur now; but we contend for a general character of disease which, in a very wide area, presents a common aspect to the medical practitioner. If the depleting treatment were thus generally as injurious as it would be in our day, is it possible to believe that this would not have attracted attention, or that the leading minds of the profession at the end of the last century were a whit less acute, observant, and conscientious than those of this or of any other age? At that period mental acuteness had reached its culminating point, and especially in the University of Edinburgh, and attention to the nature and value of general symptoms and of remedies was certainly not inferior to any in this day—indeed, taking into consideration the amount of light then and now afforded, we think mental acuteness to have been then far greater than now. The question is not whether they possessed as much knowledge as we do of the kind on which this day prides itself, but it is whether they followed a plan of treatment which was attended with the disastrous results which would attend it now.

Indeed, in reference to knowledge in general, it may be affirmed that whilst there is a profession which has passed through all preceding ages, and will yet continue, each age has its own standard of truth fitted for the conditions then existing, and to submit to that standard was both due and just. They were as right in their actions as we are in ours, and yet those actions may be very different in character. It is absurd to suppose that while all ages have been in search of truth, and each succeeding one, by the labours of the preceding, has been able to make nearer approaches to it—a condition which will doubtless proceed to the end of time—that therefore we have never found it; and that, whilst one-half of our duty is to correct the errors of our predecessors, we, in our day, are the only wise. The conditions under which men live vary as much as does the knowledge which men gain, and what was truth in all ages might well be regarded as falsehood now, if the conditions of our day necessarily existed in former eras.

It is scarcely possible that the conditions of half a century ago can recur in this country, for habits of excess become daily less suited to the feeling of the age; but with a tendency to increase of exertion, with other clothing, and with a more sufficient distribution of the necessities of life, it is very likely that the so-called asthenic type will be modified, and the treatment put on again something of its earlier phase.

This subject will be touched upon under other heads, as HABITS; LIFE, HUMAN; INTEMPERANCE.

DISEASES, INFLUENCE OF LOCALITY UPON.—The influence apparently exercised by locality upon diseases may be dependent or consequent upon several elements, as (1) climate, (2) occupation, (3) the relative ages of the pop.; or it may be compounded to a greater or lesser degree of all these. Under LOCALITY these several considerations, and others, will be dealt with in considerable detail. Here we only propose to notice the apparent influence of certain localities, *i.e.* different districts of our own country upon different prevalent diseases—correcting the disparity of age element.

In the 4th Rep. of medical officer of the Privy Council, pub. 1862, there is an account of "Places with habitually high death-rates from particular kinds of disease." It is set forth that—

Since 1858 there has been in progress, under their Lordships' orders, a systematic investigation of the circumstances under which particular districts of England suffer an excessive mort. from particular sorts of disease. The inquiries made under this head in 1861, and now requiring to be separately spoken of, were as follow:—1. An inquiry, continuing that of 1860, into the circumstances under which there is in certain districts a great adult mort. from lung diseases; and 2. An inquiry into the circumstances under which there is in some districts a great mort. of young children.

In the appendix of the same vol. there is pub. Dr. Greenhow's *Second Report on Districts with Excessive Mort. from Lung Diseases*, and Dr. Greenhow's *Report on the Circumstances under which there is an Excessive Mort. of Young Children among certain Manufacturing Populations*.

In 1873 there was pub. a Parl. paper, *Deaths in England: Average Ann. Proportion of Deaths from Specified Causes at Specified Ages in England generally, and in each Regis. Division and Regis. District during the Decennial Period 1861–70*. This return is based

upon the deaths occurring during the 10 years 1861-70, amounting in the aggregate to 4,794,500. The following is a summary of its results :

Regis. Division or District.		Pop. at all ages.		Deaths p. 100,000 living under 1 year of age. All Causes.
No.	Name.	1861.	1871.	
—	ENGLAND AND WALES	20,066,224	22,712,266	18,041
	<i>Divisions.</i>			
I.	London	2,803,989	3,254,260	19,044
II.	South Eastern Counties	1,847,661	2,167,726	14,273
III.	South Midland Counties... ..	1,295,497	1,442,654	16,549
IV.	Eastern Counties	1,142,580	1,218,728	16,265
V.	South Western Counties... ..	1,835,714	1,880,777	14,822
VI.	West Midland Counties	2,436,568	2,788,602	18,123
VII.	North Midland Counties... ..	1,288,928	1,406,935	18,173
VIII.	North Western Counties... ..	2,935,540	3,383,272	21,356
IX.	Yorkshire	2,015,541	2,395,569	20,496
X.	Northern Counties	1,551,372	1,414,234	18,160
XI.	Monmouthshire and Wales ...	1,312,834	1,439,509	15,181

In the following T. col. 1. must represent all the cols. of the preceding T. except the last.

No. of Regis. Division or District.	Deaths p. 100,000 living under 5 years of age from each of the following causes.							
	All Causes.	Diarrhoea, Dysentery and Cholera.	D. of Res- piratory Organs, excluding Phthisis.	D. of the Brain, including Hydro- cephalus.	Smallpox.	Scarla- tina.	Measles.	Hooping Cough.
E. and W.	6830	598	1104	1237	65	462	300	377
I.	8161	751	1504	1216	116	581	418	653
II.	5113	428	830	853	35	308	198	284
III.	5703	503	905	794	39	328	227	283
IV.	5425	412	828	694	27	284	165	302
V.	5223	303	853	746	37	315	258	286
VI.	6792	646	1179	1052	64	451	299	311
VII.	6132	500	896	1405	39	343	233	271
VIII.	8735	968	1456	1570	62	633	447	489
IX.	7644	707	1174	1820	107	499	296	333
X.	6959	531	933	1245	78	609	267	319
XI.	5663	181	701	1788	54	438	198	292

No. of Regis. Division or District.	Deaths p. 100,000 living of <i>each</i> of the following classes :										
	At ages between 15 and 55.				Ages between 35 & 55.		At all Ages.				
	Phthisis Pulmonalis.		Other D. of Resp. Organs.		D. of the Brain, including Hydro- cephalus.		All Causes.	Fever, Typhus of Reg- Gen.	Diarrhoea, Dysentery & Cholera.	Scar- latina.	Diph- theria.
	M.	F.	M.	F.	M.	F.					
E. & W.	368	374	132	91	173	131	2242	88	108	97	18
I.	473	325	169	106	211	146	2431	89	129	114	18
II.	358	346	103	63	177	133	1912	66	80	70	20
III.	318	354	92	62	196	136	2017	74	91	72	17
IV.	337	394	87	60	138	112	2008	67	82	67	30
V.	325	334	108	66	163	118	1994	70	59	67	12
VI.	309	321	127	82	177	129	2188	76	111	93	19
VII.	296	413	94	68	137	109	2084	79	91	73	20
VIII.	412	426	198	153	191	150	2632	127	167	131	17
IX.	358	410	141	98	170	136	2399	103	125	109	18
X.	318	389	91	70	151	131	2273	99	104	138	16
XI.	418	455	114	72	122	95	2139	92	55	91	20

It must be borne in mind that the obs. are extended to a complete 100,000 of each class, i.e. age, or group of ages referred to. [DISEASES, GEOGRAPHICAL DISTRIBUTION OF.]

DISEASES, INFLUENCE OF SEASONS ON.—The influence of the seasons upon disease has been referred to by many writers. Dr. Edward Smith, M.D., in his *Health and Disease as influenced by the Daily, Seasonal, and other Cyclical Changes in the Human System*, 1861, furnishes us with the following well-considered obs. thereon :

The existence of seasonal disease is well estab., for from the era of Hippocrates to our day the experience of mankind has borne testimony to the variations in the prevalence of disease at various seasons of the year, and to the fact that the same kind of disease assumes a different aspect at various seasons ; or to speak more generally, in various years. We need only refer to the occurrence of the plague in Lond. in 1593, 1603, 1625, 1636, and 1665, all of which received their vast development in the hot season, and to the general manifestation of cholera in our day at the same period. The occurrence of yellow fever at the end of summer in southern climes, the prevalence of special eruptive maladies at different seasons, and the occurrence of inflammatory diseases in the cold season, are familiar illustrations of universal belief upon this subject. . . .

We have already shown that the human system varies in its amount of vital action in a very definitive manner, the maximum being in the spring, the decline and the minimum in the summer, the minimum and the increase in the autumn, and a stationary elevation in the winter. Just in the like order it is exposed to an exaggeration of these tendencies. Thus as a rule the diseases of the end of summer are those of exhaustion, while those of winter and spring are known as inflammations, and those of autumn and the end of spring are marked by such conditions as result from rapid variation in the animal economy in its relation to external agents. There is also a variation in the type of disease according to the advancing tendency of the system, so that in the latter part of spring, when there is the commencement of a downward tendency of the vital actions, the progressive attacks of the diseases will progressively show an asthenic type, until they at length terminate in the diseases of exhaustion infesting the summer season ; whilst, on the other hand, diseases occurring at the end of summer and the early autumn progressively change their aspect from the asthenic form until they merge into the sthenic conditions of winter.

Hence there are both settled sthenic and asthenic conditions, and conditions varying in a definite direction between them, and as they are due to the amount of vital action existing (which results from the influence of the agencies which constitute the season), so will the sthenic or asthenic character be manifested at their respective seasons. With this key, therefore, *we may not only foretell the character of disease at a given period of the year, but may also be acquainted with the variations in the type of the same disease, as manifestations of it may from time to time occur with the progression of the seasons.* Thus, for example, an attack of scarlatina occurring at the end of a hot summer, and with a warm and moist autumn, must manifest a distinctly adynamic type, whilst if it occur after the cold weather has set in, or during a cold summer, it will be more and more inflammatory until the system is no longer very liable to that form of disease.

We are further told there are diseases which result from an arrest or lessening of the natural tendencies of the system :

Such is the character of disease which is induced by an excess of seasonal influences, or in a system unusually sensitive to the ordinary degrees of seasonal influence, viz. one of exaggeration of the natural tendencies of the system ; but there are other diseases arising from a contrary condition.

We are thus led up to understand "that the constitutional peculiarities of individuals modify the effects of season." But speaking generally: *The foundation of seasonal disease is the varying degree of vital action proceeding within the body at the different seasons of the year.* May we not here discover some justification for the astrologers, in the connexion which they found between the occurrence of particular diseases and the signs of the Zodiac—bearing in mind the month which each sign represents, and allowing that latitude to the various months which we permit in our combined idea of the seasons, as associated with the occurrence of disease? The subject will bear some further examination.

Here is an illustration from one of the numerous writers of this class, pub. during the 17th century :

Sign.	SPRING.			SUMMER.		
	<i>Aries.</i>	<i>Taurus.</i>	<i>Gemini.</i>	<i>Cancer.</i>	<i>Leo.</i>	<i>Virgo.</i>
Month.	April.	May.	June.	July.	Aug.	Sept.
Sign.	AUTUMN.			WINTER.		
	<i>Libra.</i>	<i>Scorpio.</i>	<i>Sagitt.</i>	<i>Capric.</i>	<i>Aquar.</i>	<i>Piscis.</i>
Month.	Oct.	Nov.	Dec.	Jan.	Feb.	March.

Here is the key, or interpretation thereof :—

<i>Aries.</i>	Skin diseases and sun-burning ; perhaps smallpox and measles ; diseases of the head and nerves.
<i>Taurus.</i>	Disease of the throat.
<i>Gemini.</i>	Diseases from blood-letting ; diseases of the blood.
<i>Cancer.</i>	Want of appetite ; dropsies ; coughs ; affections of the stomach and liver.
<i>Leo.</i>	Affections of the heart ; fever ; jaundice ; pestilence ; all disease of cholera.

Virgo.

Libra.

Scorpio.

Sagittarius.

Capricornus.

Aquarius.

Pisces.

Diseases of the bowels; choleric and iliac passions; affections of the spleen; melancholy.

Diseases of the kidneys; gravel; diseases from corruptions of blood.

Diseases of the kidneys and the womb.

Sciatica; pestilential fevers; heat of blood.

Skin diseases; accidents; melancholy; and discharges.

Cramps.

Chilblains; gout; skin diseases; smallpox; measles; all cold and moist diseases; and such as come by catching wet and cold feet, which lead on to the affections of the head under *Aries*.

Dr. Edward Smith says:

When this list is compared with that already given, it will be seen that there is a substantial agreement with the occurrence of disease in our own day. There was a conceit that the parts of the body were progressively affected from above downwards as the months advanced: beginning with the head in April, and going to the throat in May, the stomach in July, the heart in August, the bowels in September, the kidneys and bladder in October, the hips (rheumatism) in December, and the feet (taking cold) in March; and although it is fanciful, there is a correspondence between its principal parts and the actual prevalence of disease in these months. The *planets* were, however, brought into the larger question of the seasons—so that *Jupiter* (winter) was said to rule the chest, *Venus* (spring) the functions of generation, and *Mercury* the part of the brain which is intelligence, etc.; but this part of the science is further removed from fact than that above indicated.

The astrologers, like the alchemists, contributed to the store of human knowledge. [CLIMATE.] [EPIDEMIC DISEASES.] [PLAGUE.] [SEASONS.] [TEMPERATURE.]

DISEASES, NOMENCLATURE OF.—See DISEASES, CLASSIFICATION OF. [NOMENCLATURE.]

DISEASES OF ARTIZANS, TRADESMEN, ETC.—See OCCUPATIONS, under which head much information will be furnished on this subject.

DISEASES OF THE ARMY.—Under ARMY we have taken a survey of the chief obs. on the health and mort. of this branch of the service. Under TROOPS we shall have some further details to add.

DISEASES OF THE NAVY.—See NAVY, DISEASES OF THE.

DISEASES OF TROPICAL CLIMATES.—In 1855 Dr. James Ranald Martin, M.D., pub.: *The Influence of Tropical Climates on European Constitutions; including practical obs. on the nature and treatment of the diseases of Europeans on their return from tropical climates.* A work of peculiar interest to a certain class of L. offices. We propose to treat the subject generally under TROPICAL CLIMATES.

DISEASES OF UNCERTAIN SEAT.—See UNCERTAIN SEAT, DISEASES OF.

DISEASES, PHYSICAL CONFORMATION OF BODY OCCASIONED BY, OR INDICATING, THESE.—See HEAD, DISEASES OF; MEDICAL SELECTION.

DISEASES, PREVENTIBLE.—See PREVENTIBLE DISEASES.

DISEASES PREVENTION ACT, 1855.—The 18 & 19 Vict. c. 116, amended by the 23 & 24 Vict. c. 77 (1860).

DISEASES, PREVENTION OF.—Legislation with a view to prevent the spread of contagious diseases is in this country of modern date. The Nuisances Removal and Diseases Prevention Act, 1848, amended by that of the same title in 1849, were the first attempts; but in so far as the same related to the prevention or mitigation of epidemic, endemic, or contagious diseases, they were found ineffective. Hence there came as a separate measure the Diseases Prevention Act, 1855—18 & 19 Vict. c. 116—under the provisions of which local authorities have powers of entry and for executing regulations and directions under the Act. The 21 & 22 Vict. c. 97 (1858), provides that such regulations, etc., shall be issued by the Privy Council. Hence, whenever any part of England be threatened, or is actually affected, by any formidable epidemic, endemic, or contagious disease, the Privy Council may by order put in force the provisions of the above Act for the Prevention of Diseases for a period not exceeding six months; and they may then issue regulations for the speedy interment of the dead; for house-to-house visitation; and the dispensing of medical aid, which they may revoke or alter. Such regulations to be pub. in the *Gazette*. Such orders may extend to all parts of the sea within the jurisdiction of the Admiralty; and regulations may be issued for purifying and disinfecting ships and providing medical aid on board. [MEDICAL OFFICER.] [PUBLIC HEALTH.]

The Reports pub. by the medical officer of the Privy Council, under the authority of the last-named Act—known as the Rep. of the Medical Officer of the Privy Council, and consisting of 13 vols., pub. during the period 1859–71—constitute a most important contribution to the Vital Statistics of Gt. Brit., and will be found frequently referred to in these pages.

Dr. Nichols, in his *Human Physiology*, 1872, says:

The prevention of disease is comprised in securing to every individual the conditions of health, and protecting him from the causes of disease. Sanitary legis. may give light and comfortable shelter, by compelling the construction of proper dwellings; pure air, by general cleanliness and ventilation; pure food, by intelligent and honest inspection, and prevention of frauds and adulterations; pure water; and other health conditions, by suitable hours for work, fair wages, public recreations, baths and wash-houses, and the diffusion of a general knowledge of the laws of health. [HEALTH.]

At the Social Science Congress, 1872, Mr. T. Baker, Barrister-at-law, and author of that well-known work, “Laws relating to Public Health,” read a paper, *The Prevention*

of Disease, in which the importance of the question was enforced with much judgment and prudence. The author says :

Our subject being the prevention of disease, let me be permitted to assume that some few, at least, of our race are to be found in sound health. How can they surely preserve it? or, in other words, how are they to prevent the entrance of disease? *i.e.* disease not arising from over-excitement, or undue wear and tear, on the one hand, nor from lack of exercise or *emmu*, on the other; for with these we at present have no concern. I answer unhesitatingly, by preventing the admission of poison of any kind into the blood. But how may poison enter, and how are we to guard against its admission? (1) Poison may be absorbed into the blood through unwholesome food or drink; (2) by the inhalation of foul air through the lungs, which is sometimes denominated "infection"; (3) by inoculation through open wounds, externally or internally, *i.e.* cuts, sores, or ulcers, in the skin or mucus membrane. Whether we may also introduce, by absorption through the pores of the skin, poison exhaled from the skin of diseased persons, which is true "contagion" (though that term is often used so as to include lung infection), is a moot question in epidemic disease; but I very much doubt the possibility. [DISEASE-DESTROYING TREE.] [PUBLIC HEALTH.] [VITAL STATIS.]

DISEASES, PRODUCTION OF.—Among the causes which most favour the production of diseases may unquestionably be ranked neglect of personal cleanliness, and disregard of sanitary laws. Those who believe disease to be pre-ordained,—that is, that a certain amount of disease forms a portion of the natural inheritance of fallen man,—may yet find in the above-named measures at least the hope of personal exemption. While all the more recently and carefully conducted obs., as we have already seen, discover in the above a solution not otherwise afforded, yet there are causes and influences at work in the production of disease beyond these: causes which have been glanced at by many of the writers we have quoted; but which are not yet completely understood.

Dr. James Clark, M.D., said in the opening chap. of his famous work on *The Influence of Climate in the Prevention and Cure of Chronic Diseases, etc.*, first pub. 1829:

Although the power of different climates to produce, as well as to alleviate and cure, diseases is well estab. as a matter of fact, yet, perhaps, there is nothing in general science more unsatisfactory than the manner in which we are able to explain this influence.

The influence of climate in the prevention and cure of diseases is, for many reasons, a subject of peculiar interest to the inhabitants of this country. To the inclemency of our seasons we are justified in attributing some of our most fatal diseases; and many others, of great frequency, if they do not derive their origin immediately from our climate, are at least greatly aggravated by it.

Among these he especially enumerates pulmonary consumption. [CLIMATE.] [COLD.] [PUBLIC HEALTH.] [SEASONS.] [TEMPERATURE.]

DISEASES, REGISTRATION OF.—The important considerations attaching to the subject of disease has led to various suggestions and some actual proposals for a national Regis. of Disease on some uniform plan. As some efficient regis. of sickness and disease may now be considered only as a work of time, it becomes instructive to review the suggestions which have been made; as also to note what may be done in a like direction in other countries.

In France the State has physicians whose bus. it is to visit any place where an epidemic is raging, and to report the facts obs. to the Minister of Agriculture and Commerce; much, indeed, after the manner of our medical officer of the Privy Council and his assistants, Dr. Richardson, from whom we have hereafter to quote rather prominently, says hereon: "But that any law relating to the diseases should be educed from this plan is impossible; for the inspection is only made at particular periods, and then imperfectly. I believe also that the attempt, as it is carried out, leads to much jealousy between the physicians sent by the Gov. and the local practitioners."

In Germany efforts at regis. have been made by private asso. of scientific men; but never to continue long in organization and action.

The inquiry as to the amount of disease existing in Ireland at the date of the Census of 1841, as conducted by Dr. Wilde, under the direction of the then Census Commissioners, was the first attempt with which we are familiar to regis. the existing diseases prevailing at a given date in any one country; but it cannot be regarded as a success. [DISEASE, 1851.] Dr. Richardson speaks of this as follows:

The immense work, the census of disease in Ireland, may be looked on as connected with the regis. of disease, inasmuch as it supplied the facts of the amount and character of the diseases present at a given time in a great country, the social condition of which was being chronicled at the same moment. But the information thus gathered, all-important as a standard, was struck out too suddenly to admit of analysis, as a regis. of the progress of the disorders specified.

For a short time the medical officers of health in Lond. tried to estab. a system of regis. of disease; but only with partial success. The first attempt which gave any hope of developing into permanent results may be taken to be the founding of the *Epidemiological So.* in Lond. in 1850. The Pres., Dr. Babington, in his intro. address, stated the objects of the So. to be:

To endeavour by the light of modern science to review all those causes which result in the manifestation and spread of epidemic diseases; to discover the causes, at present unknown, and investigate those which are at present ill-understood; to collect together facts on which scientific researches may be securely based; to remove errors which impede their progress; and thus, as far as we are able, having made ourselves acquainted with the strongholds of our enemies, and their modes of attack, to suggest those means by which their invasion may either be prevented, or, if in spite of our resistance they have broken in upon us, to seek how they may be most effectually combated and expelled.

Four committees of the So. were said to be actively engaged in the year 1851 in investigating the following important subjects:

1. The facts connected with smallpox and vaccination.

2. The condition of common lodging-houses as influencing the propagation and spread of epidemic disease.
3. The epidemic diseases prevalent in public hospitals.
4. Epizootic diseases, more especially those affecting domestic animals.

The results of the labours of these committees will be found in the pub. *Trans.* of the So. It is seen that the object of the So. was investigation rather than regis. The various other and outside efforts by which it was speedily followed also indicate that it did not fully meet the requirements.

The next attempt was commenced in 1853, by Dr. B. W. Richardson, and took a wider range than anything previously attempted in England. "My first endeavour (says that gentleman) was to obtain a certain number of stations in different parts of the country, and to supply to one or more resident medical men forms of returns in which they could note the current diseases." The first great difficulty consisted in securing willing and competent observers; but this was overcome, and 12 stations were estab. in various parts of the country. The observers in all cases were medical men in large practice, possessing corresponding opportunities for knowing of the existence of any disease around them. They were requested to confine their obs. to the following allied disorders: scarlet fever, measles, smallpox, hooping-cough, croup, catarrh, influenza, erysipelas, cholera, ague, remittent fever, diarrhoea, typhus, puerperal fever, and carbuncle. Tabular forms, conveniently arranged for noting the obs., were supplied, accompanied by instructions containing, *inter alia*, the following:

As it is the object of the T. to ascertain the presence of the disease named rather than the number of cases, the occurrence of even a single case should be chronicled. But observers who may wish to notice other important facts, such as the extent and mort. of an epidemic, its mode of origin or importation, meteorological phenomena, etc., may do so in the blank space headed "Add. Obs." Observers will please to return the rep. punctually on the first days of March, June, Sept. and Dec.

Place of obs. — Latitude — Longitude — [Then the form.]

Dr. Richardson says:

We obtained from these T. at one glance a perfect view of the progress of the diseases named at given points of lat. and long., their prevalence according to season, the relative duration of each form of disease, and the order in which one epidemic followed another.

To these essential facts much interest was added through the "add. obs." made by each observer. Knowing well how much the time of the busy medical practitioner is occupied, and feeling sure that any intrusive and organized encroachment on his time and industry would be safe to carry with it its own destruction, I abstained from doing more than suggest what information would be most useful, leaving the details to voluntary effort. In the suggestions thus respectfully offered I took care, however, always to throw in major considerations. The following points of information were specially asked for:

1. Notes of meteorological changes taken daily, and classed side by side with the report of disease.
2. Notes on the diseases of inferior animals, classified by the side of the diseases occurring simultaneously in the human subject.
3. Notes on the condition of the vegetable world and of the diseases of vegetables, classified in the same way.
4. Notes on the water supply of the different stations, and on the real or apparent connexion of such supply with the prevailing diseases.
5. Notes on the sanitary state of the station—of drainage, of food, of architecture, and, in fact, of the social condition in general of the locality.
6. Notes bearing on the mort. of the disorders specified in the returns.
7. Special note as to the method by which any given epidemic found its way into any given locality: whether a case of the same disease had been imported, or whether any art. had been imported which could have contained a poison.
8. Special note as to the outbreak of any new epidemic disease within the bounds of any station, and as to the mode of origin and propagation of such epidemic.

We are told that "the occurrence of new forms of disease, and of peculiarities of types in diseases common to the neighbourhood, were supplied with much fidelity." The early notification of the prevalence of diphtheria at Canterbury is noted as an instance.

The results of the inquiry were pub. regularly each quarter in the *Sanitary Review*; and very soon 50 fellow-labourers were working with Dr. Richardson. "In a vast number of cases evidences of the origin of diseases from local causes were cited with a circumstantiality which was irresistibly conclusive; and over and over again the subsidence of epidemics on the removal of such producing causes was clearly demonstrated." Here was direct evidence of the good resulting; but the enterprise was too great for individual effort, and in 1858 it subsided.

In 1853 it appeared by a Parl. return that there were 3233 parochial medical officers in E. and W. It has been from time to time suggested that these should be made available for the regis. of diseases. But we have seen no practicable scheme propounded in support of the proposition.

In 1854 the conductors of the *Journ. of the Brit. Medical Asso.* commenced in its pages to regis. diseases as occurring in connexion with meteorological phenomena. Several stations of obs. were appointed, and for several years returns were supplied and pub. week by week. The scheme was good, and the results were certain to be beneficial; but the work was again too great for private enterprise, and it was discontinued.

Dr. Farr does not appear to consider that the period for the regis. of diseases, in a systematic manner, has yet arrived—at least so we judge from the obs. he offers thereon in the 16th Rep. of the Reg.-Gen. pub. 1856.

The state of health among the people differs in different times and in different places; and the

principal purpose of the regis. of diseases is to determine the degree of their variation in each district, and in each class of the pop., as well as the extent to which they are modified by circumstances. The causes of insalubrity are thus discovered at their source by death itself; and it is found that in many instances these causes admit of removal by sanitary measures. The deaths that are the direct result in any way of human agency undergo judicial investigation, which is often aided by the purely statistical inquiry.

The difficulties that attend the inquiry into the diseases of a whole pop. are numerous. They may be referred to several heads. The phenomena are sometimes exceedingly complicated, and those of the greatest importance pass within the human body. Medical science is, notwithstanding all its achievements, still imperfect; the medical observers all over the country are not always familiar with the latest improvements in the practice of their art, and it often happens that they are only called to see their patients in the last days of illness. In parts of our towns, as well as in remote parishes of the country, many young children and old people die without being seen by any medical man.

No perfect record of the diseases of mankind can, therefore, we believe, be obtained in the present state of civilization; but experience justifies us in saying that the record of the ascertained facts, and of the opinions of the existing race of medical practitioners in Europe, is of value, and admits of many practical applications.

In 1861 the question of introducing into Ireland a system of regis. of births and deaths analogous to that of England and of Scotland was before Parl., and attempts were made to extend the regis. to diseases of non-fatal termination; but again no practical proposal was brought forward. A measure was passed in 1863, which did not extend to diseases of non-fatal termination, but required the medical attendant, in case of death, to state "cause of death," and "duration of illness." [Sec. 46, and Form D. in appendix.]

The same Dr. Benjamin W. Richardson, M.D., of whose efforts we have already spoken, read before the Social Science Congress, 1861, a paper: *Facts and Suggestions on the Regis. of Disease*. The writer, who now brings all his former experience to bear upon the subject, says:

In order to arrive at a correct knowledge of the causes of the diseases of the community, and to see the way clearly and scientifically to the prevention of disease, the first great step consists in securing systematic and widely extended T. of facts bearing on the existence of particular diseases, occurring at the same periods, in different localities, and under differing social conditions. This method of research would apply to all diseases,—to those which are fixed amongst us, such as cancer and consumption, and to those which are recurrent, such as measles, scarlet fever, and smallpox.

But, in recognizing the necessity for the regis. of all the diseases that afflict humanity, I do not think it a practical plan to broach the idea of a system of regis. which should at once attempt to embrace diseases in their universality. I consider that regis. will commence best by a plan that shall confine the labour to disorders transitory and migratory in character—I mean to disorders of the epidemic class. These last-named affections offer themselves primarily to our consideration owing to the facts that they present an acuteness of outline, and a demonstration, which are peculiarly marked; they thus attract more immediate attention, and become objects for contemplation to all practitioners of medical science; and not to these only, but to the public at large. I wish it to be understood, therefore, that in this communication I shall consider the question of regis. in its simple application to epidemic affections.

He then divides his subject under the following heads: 1. The study of epidemic diseases. 2. Method of regis., its principles and objects. 3. The attempts which have been made to estab. a method of regis. 4. A plan for the complete regis. of these diseases in England. To the first head we shall recur under EPIDEMIC DISEASES, merely noting one obs. here:

It is and must be clear to every thinking mind that these great visitations of disease which ever and anon enter our homes, shaping the same course, presenting the same general features, destroying on an average the same numbers of persons, and passing away, as it were, in disciplined order, offer marks for the scientific inquirer, which ought at once to be read off by him, and to suggest to him how such grand and steadily governed armies of disease may be arrested in their march, or even annihilated altogether. But when we look around at the progress which has been made, and is being made, towards the perfect comprehension of these disorders, we see no system as yet, developed or developing, that promises anything like a successful attainment of objects as beneficent as they are great. The majority of disease observers, indifferent as to causes, are content to rest their exertions on the remedial department of their art—in curing those conditions which ought never to have been permitted; while others who look for causes and study prevention are carried away by their own thoughts and experiences.

In reaching the second head, the writer says:

In instituting a method for the regis. of disease, two objects must be kept fully in view. The first is the collection of all the facts relating to any current epidemic; the second consists in the classification, analysis, and compilation of the facts collected. In pursuance of the first of these endeavours four elements are required: (1) the whole competent mental strength of the district or country in which the epidemic exists; (2) uniformity in the system of obs.; (3) a ready and easy mode of recording obs.; (4) a properly constituted plan, by which the facts observed may be collected and prepared for subjection to analysis and induction. In pursuance of the second great object, a control authority is necessary.

Under the third head he reviews the several attempts at the regis. of disease which we have already noted, and adds:

To a certain limited extent the institution of the mort. returns of the Reg.-Gen. have operated as a regis. of disease. These returns are invaluable as showing, on a grand scale, the mort. of epidemics, their prevalence, their course, their effects on the sexes, their relationships to season, and it may be, in an imperfect manner, their connexion with meteorological conditions. Still, these returns are only valuable absolutely as regards mort.; this, their orig. object, is their only direct good. They exhibit accurately the balance paid over by disease to death, but not that which is paid over by health to disease.

Under the fourth head is propounded a plan for regis. which the author had proposed in the *Sanitary Review*, and of which we have already spoken.

At the same Congress Dr. Alexander Harkin, M.D., read a paper *On the Regis. of Births, Deaths, and Diseases* [in Ireland]; with special reference to the Bills of Mr.

Cardwell and Lord Naas. These particular Bills we shall speak of under REGISTRATION; but the author offers some obs. regarding the regis. of diseases which we propose to quote:

The scientific regis. of diseases, however, cannot be separated from that of births and deaths in any well-regulated system; for, when we attempt to consider their relative influence on the increase or decrease of the pop., we discover that disease has more direct influence on the increase than births themselves. It is long since Mr. Porter laid down the proposition that "pop. does not so much increase because many are born, as because few die;" and Dr. Price that "mort. follows invariably the rate of sickness;" and this is still true, with a reservation in favour of modern improvements in medicine. If, then, the agency of disease is so powerful in controlling the increase of the pop., it is surely but reasonable to expect that when the Gov. is estab. a normal system of regis. of the leading vital phenomena, it shall at the same time, and by the most complete machinery, collect the most reliable information relative to the amount and nature of sickness, and of the circumstances under which it arises; in short that it shall, along with the regis. of births and deaths, unite in the same bill the regis. of diseases, beginning with that portion treated at the expense of the public.

On this latter point he enlarges as follows:

Who among us can adequately calculate the loss to medical science, and ultimately to our common humanity, that results from our criminal neglect in not collecting and pub. the results of treatment, successful or otherwise, in our great national hospitals, our county infirmaries, union hospitals, dispensaries, lying-in hospitals, and asylums for the insane; or sufficiently lament, that with such an extended area of obs. how little, comparatively speaking, has been accomplished in estab. the laws that regulate the causation and prevention of disease? More than half the pop. of these realms are medically relieved in our public sanatoria, at very considerable outlay; how trifling the amount devoted to the prophylaxies, or prevention of disease. With the exception of the fees paid for vaccination (£5508 in Ireland) to protect us from the inroads of a single malady, nothing is done for the diminution of preventable disease. Until, however, the dispensary medical attendant is required to devote himself as much to preventive as to curative medicine; until he is recognized as the paramount sanitary officer of the district—to which the course of events is rapidly tending—but half of his important duties will have been performed. . . .

It must be remembered that the author all through his paper is referring to *Ireland* only.

In 1863 a system of regis. of disease was inaugurated by the Northumberland and Durham Medical So., and complete reps. entitled "Health and Meteorology of Newcastle and Gateshead," with weekly T. of the actual number of cases of disease and death, since 1867 have been issued by the same So. The returns upon which the Rep. have been based are contributed weekly by the public medical practitioners, those in charge of the union districts, and of the charitable and public inst., all cheerfully assisting. The Reps. from the first have been prepared by Dr. Philipson, of Newcastle, and have been read at the meetings of the So., frequently giving rise to important discussions and most valuable suggestions. The forms employed are at once simple and effective.

In our art. DISEASE, under date 1867, will be found reference to a paper by Dr. Arthur Ransome, setting forth some of the advantages resulting from regis. of disease.

In 1870 Mr. James Lewis, of the Reg.-General's Department, Somerset House, issued a pamph., *Suggestions for National Returns of Sickness*, in which the subject is viewed in a clear and practical light. The author is of opinion "that in order to give increased effectiveness to the administration of our sanitary laws, there should be National Returns of Sickness, as well as National Returns of Deaths." He says truly:

Very many difficulties would be involved in any attempt to deal with the sickness arising among those members of the community who are treated at their own charge by medical practitioners totally unconnected with any branch of public administration; and the proposals in this paper are confined entirely to cases of sickness occurring within the practice of Poor Law medical officers, and of the medical officers of charitable inst. . . .

Every Poor Law medical officer, whether in charge of a district or a workhouse, is required by the Consolidated Orders of the Poor Law Board to make a return to his board of guardians at each of their ordinary meetings, setting forth certain particulars embracing the nature, treatment, duration, and result of each case of sickness coming under his care. From most of the hospitals, infirmaries, dispensaries, and asylums throughout the country no doubt similar information could be obtained. It is not unlikely also that the co-operation of F. Sos., Odd Fellows, and other provident bodies, would in process of time be willingly afforded.

He further stated that there were about 3200 Poor Law medical officers in E. and W., and that these treated on an average 3,500,000 cases of sickness p.a. The various medical charities were estimated to treat about 1,500,000 p.a., making a total of about 5 millions of cases of sickness p.a. as occurring in the public medical practice of E. and W. He was of opinion that returns from these sources of some 20 of the leading specific diseases, with the number simply of all other diseases, should be returned weekly to some central authority; and that the results should be tabulated and pub. for the national good.

In March of the same year Mr. Lewis brought the subject before one of the sessional meetings of the Social Science Asso.; when he made it quite clear that the best central authority for dealing with the proposed returns would be the Depart. of the Reg.-Gen.; any necessary action indicated by the results of the weekly returns being undertaken by the medical officers of the Privy Council. He continues:

I cannot imagine how anybody well-informed upon these matters can advocate a separation of the returns of sickness from the returns of death. They are complementary to each other, and should be compiled by one and the same department. And when it is remembered that the Reg.-Gen. is also the sole authority in this country upon matters relating to pop. (an element which necessarily enters into the statistics of sickness, as it does into the death statistics), I can come to no other conclusion than that in the statistical branch of the Reg.-Gen.'s office we have the nucleus of what ought eventually to become the Department of English V. Statistics, with its three subdivisions for Census, Sickness, and Mort. Returns.

Then, in view of a commencement, a point so essential in all new undertakings, he says :

I incline to think that it would be politic if the Gov. were asked in the first instance to take measures for obtaining and publishing weekly returns of sickness on the simple basis I propose : from Poor Law medical officers, and from medical charities, F. Sos., etc., in Lond. and the various other large cities and towns for which we now have a weekly return of deaths. Then with the present *quarterly* returns of death we might have a *quarterly* return of sickness for the whole country. This I regard as a useful alternative proposition to my orig. one of a weekly return of sickness for all England.

He glances at the practical aspect of the case from another point of view :

Speculation as to the amount of defect to be anticipated from an attempt to collect returns of sickness on a comprehensive scale would be to little purpose ; but I think there is reason to be somewhat hopeful on that score, if we may judge by the success which has attended the Manchester and Salford Sanitary Asso. during the 10 years that it has pub. a weekly return of sickness.

At a gen. meeting of the Poor Law Medical Officers Asso., held in Nov. 1870, resolutions were passed in support of the system advocated by Mr. Lewis. It was there stated by Dr. Maunsell, of Dublin, that in that city a weekly return of deaths was forwarded to the Reg.-Gen. from each dispensary, which showed the districts in which disease was prevalent ; and that also a weekly return was forwarded to the Dispensary Committees of the prevalence of the various diseases in each district. This system had worked beneficially.

Appendix C. to 31st Rep. of Reg.-Gen., pub. 1870, contains a somewhat remarkable document, under date 6 July, 1869 : "Remarks submitted to the Consideration of the Royal Sanitary Commission, by the Registrar of E. and W." From this we take one or two passages :

I object to the proposal that I am to become acquainted with the record of every attack which assails each individual of the 22 millions of inhabitants of this part of Gt. Brit.—infants, adults, and aged—from which they recover ; a national regis. of all diseases not fatal. . . . I am opposed to the project that still-born children should be regis.

I well know how great is the demand for statistics in this age, and that learned and distinguished statisticians are numerous, who earnestly devote their time to the study of returns and T., and calculations of averages and estimates upon every imaginable subject. . . . But I did not expect to live to see the day that I should be called to appear before a Royal Commission, and asked to regis. all the complaints which do not kill, but only annoy and afflict the 22 millions of inhabitants of E. and W. I had thought that with respect to diseases not proving fatal the information already obtained would have been deemed sufficient to satisfy the most inquiring of minds : as we have the reports of hospitals, dispensaries, infirmaries, lunatic asylums, reformatories, prisons, workhouses, army and navy hospitals—all of which might be tabulated and pub. ; amounting, it is said, to 5 millions of separate cases ann. ; and we read the results obtained under the Contagious Diseases Acts ; and are made acquainted from week to week through the medical journals with peculiar cases occurring in private practice.

How are my regis. officers to perform this proposed duty ? Where is the line to be drawn ? Nearly 800,000 women every year in E. and W. bear children ; is each of these cases to be particularly recorded with their varying specialities ? And are the ailments of these hundreds of thousands of newly-born infants to be regis. ? Are inquiries to be made and facts recorded respecting the catarrhs and headaches and indigestions which many people occasionally suffer from ! When the regis. have noted the puerperal cases, and the infantile diseases not proving fatal, they will have a delicate and a difficult task when they intrude their inquiries into the complaints of adults. . . .

In 1869 a Royal Sanitary Commission was appointed. Among the subjects specially forced upon the attention of the Commission was that of the importance of the regis. of disease. Mr. Simon, Major Graham (Reg.-Gen.), Dr. Farr, Dr. Burke, Dr. Christison, Dr. Rumsey, Mr. Carr, Dr. Day, Mr. Druitt, Dr. Trench, Mr. Dyke, and others, gave evidence upon the subject ; and as this evidence is very fully and fairly summarized in the 2nd Rep. of the Commission, pub. 1871, we propose to reproduce that portion of the Rep. relating to "regis. of sickness" here :

But however complete the regis. of deaths may be, it cannot give a fair estimate of the grief and poverty occasioned by sicknesses that are not fatal ; it cannot indicate where or how these are to be prevented or remedied ; it cannot tell the cost which is worth incurring for their diminution. To these ends the first step must be a regis., so far as may be practicable, of all the cases of the most prevalent and injurious sicknesses among such portions of the pop. as may suffice for an estimate of the general state of the public health, and especially of the health of the working classes, and of those for whom sanitary arrangements are most urgently needed. *All the witnesses examined by us on the point have spoken strongly of the need of this regis. of sickness.* Among the chief purposes it would serve are these :

1. It would keep the public, and especially the central sanitary authority, constantly aware of the state of the public health in every part of the country. *A certain amount of knowledge of this kind is obtained from the regis. of deaths, and it would be hard to overestimate the good service they have done ; but the greatest knowledge they can supply is not only scanty, in comparison with what is wanted and can be had, but is often too late to be useful.* In nearly all cases of epidemic and contagious diseases time is lost before the deaths, few in comparison with the cases, begin to attract attention. *In many instances weeks have elapsed, before the existence of widely prevalent and preventible diseases has become known to any efficient sanitary authority.* Thus the best opportunities have become lost both of ascertaining the origin of epidemics, and of preventing or limiting their spread. *The chances of suppressing an outbreak of disease are in direct proportion to the speed with which it becomes known to a sanitary authority ; and it is only by a systematic regis. of all cases, whether fatal or not, that the speediest information can be attained.* The advantage of obtaining such information has been proved in Ireland, where the medical officers of districts in which epidemic or infectious diseases appear are bound to report them to the Poor Law Commissioners in Dublin, who at once send down inspectors, and, if necessary, assistant medical officers.

2. Regis. of sickness would teach more than we can yet guess of the magnitude of the grief and poverty caused by disease. This is very incompletely shown by a regis. of deaths. For example, in an epidemic of scarlet fever, the deaths are rarely more, and often less, than 10 p.c. of the cases. But

reckoned by its money cost, a non-fatal case may be more costly than a fatal one: for in the one the cost ends with burial; in the other it has to be borne through the whole period of sickness, and of the often tedious convalescence. Moreover, after every epidemic of scarlet fever, whether it has been very fatal or not, thousands are left disabled for long periods, or for life, with diseases of the ears, or bones, or joints, the glands, or other parts; and the great majority of these are a burden on the working power of the healthy.

What is thus true of scarlet fever is equally true of other epidemics. Their mort is no sufficient measure of the importance, whether for the sake of humanity or of economy, of preventing or limiting them. In an epidemic of relapsing fever not more than one or two of every 100 cases may appear on the regis. of deaths; but the cost of the other 98 in every 100 must be enormous, seeing that every one of them has to be expensively maintained for many days or weeks.

Moreover, it has often been observed that an epidemic, even when very fatal, does not add largely, if at all, to the total mort. of a few years. When many die of one epidemic, few die of others, or of all other forms of disease. But there is no such counterbalance for the cases of sickness and disability that are left as the residues of an epidemic. These are all costly so long as they continue: they are a dead loss.

Terrible as epidemics are, when we count the thousands that have died quickly in them, and guess at the misery consequent on the deaths of those who worked for others; they would seem much more terrible, if we could count the consequences of the necessity of maintaining the many more thousands, who are disabled for months or years from working either for themselves or others.

3. It is prob. that the regis. of sickness would show more urgent need than is yet felt for diminishing, if possible, many diseases that, being neither epidemic nor often fatal, are commonly regarded without concern. Ague is very rarely fatal, it counts for little on a regis. of deaths; yet ague in all its various forms, and in its long abiding, is a great hinderer of work, a great burden on the wealth of the nation: a burden which good sanitary arrangements could remove, and prob. would remove if it were shown to be worth the cost.

And so of scrofula, of rheumatism and bronchitis, and of many other disabling maladies. We cannot doubt that a regis. of sickness would show that not only the personal misery but the public loss caused by these diseases is enormous. Thousands suffer either constantly or through a large portion of the year. Many of them suffer and are thus disabled year after year; and during all their suffering they are maintained wholly or in part by the labours of others. *It is prob. that, on the whole, these diseases are much more costly than the most terrible epidemics; certainly they are so, if we reckon their influence on the progeny of those who suffer.* And yet to what amount they are costly, or what cost ought to be incurred for their diminution, we can scarcely guess without a regis. of sickness.

4. Another class of cases of which the death regis. do not nearly indicate the importance as affecting the working power of the country, are those of diarrhoea, influenza, and other widely prevalent maladies, which, although often trivial to the individual, are very impoverishing in their effects on the people generally. The deaths caused by them are not felt as causes of poverty: for they are fatal to very few except children, and invalids, and old persons; they are often too few to attract any attention; and every year thousands suffer and are unobserved by any sanitary authority. Yet the cost of these diseases in loss of work is so great that it can scarcely be estimated.

5. The regis. of sickness would further show whether, and in what degree, legislation is needed for the prevention of diseases dependent on occupations and social habits. Much has already been done in this direction by the inquiries directed, and by the medical officer of the Privy Council; but the effects of many occupations on health are still unknown.

The effects of social vices and vicious habits of life, whether any of them are sources of such sickness, poverty, and decay as to justify on public grounds a considerable expenditure of money and of executive force, cannot be known without regis.

6. In all these, and in many other instances, a regis. of sickness would supply a comparatively full knowledge of the prevalence and magnitude of diseases, which are imperfectly indicated in the regis. of deaths; but of which a fuller knowledge might be expected to teach the means of prevention. Equally it would correct some errors which are scarcely avoidable in deductions from the death regis. In these, for instance, each death is regis. at the place at which it occurs, whether the fatal illness commenced there or elsewhere. Yet it is obvious that for the prevention of disease we ought to know where it began, rather than where it ended. The regis. of sickness would tell the former—that of deaths the latter.

The errors hence arising are not trivial. Large classes of persons, including domestic servants and "workers on premises," usually leave the places in which they reside as soon as they fall severely ill. The places in which they die are thus made to appear more unhealthy, and those which they leave less unhealthy than they truly are.

Similarly, the insane and many other persons who have been long invalided with one disease often die of another, and this is regis. as the cause of death. Yet that which it was more important to prevent, because it was the more costly, and wasted, though it did not quite destroy, life, was the earlier and longer disease, which would have appeared in a regis. of sickness, but takes a subordinate, if any, place in a regis. of deaths.

7. A regis. of sickness is essential as a test of the fitness of institutions for the reception of the sick and poor. The regis. of deaths in various hospitals and workhouses is important; yet it may tell little more than the proportions of cases of very severe disease admitted into them. That which ought to be known is the number and character of the cases of sickness that begin in each hospital: e.g. of fever, erysipelas, etc., springing up among those admitted for other ailments.

8. And it may be hoped that a regis. of sickness would bring to light not only many unknown liabilities to disease, in various places, and among various classes, but some immunities, from the study of which means of improving the public health might be derived. There is reason to believe, for instance, that workers in brass are insusceptible of cholera; that people bred in rural districts are less liable than those who live in towns to the blood infections following injuries. And, if these are facts, it is not likely that they are the only facts of the kind: there must be many more, which a regis. of sickness would help to detect.

On these grounds the Commission recommended "that authority and sufficient means should be given to the Reg.-Gen. for a regis. of sicknesses, under the direction of the Central Sanitary Authority." But they admitted that questions might arise "as to how far the regis. should be carried." Upon this important practical point they enlarge as follows:

It would be unwise to attempt to regis. all cases of sickness in the whole pop. *The number of cases severe enough to disable from work, or to require medical help, is prob. in E. and W. not less than 13 millions a year.* The cost of regis. so vast a number of facts, however simple, would be far beyond its value.

It would be impossible to regis. all cases in private houses.

The diseases constantly regis. should be those which affect large numbers of the pop.; which may be considered, in a greater or less degree, preventible by sanitary arrangements, and which are usually not difficult of discrimination. The regis. of other diseases than these should be by a single entry of the total number of "other diseases"; but an exact regis. of any of them might be from time to time directed by the central sanitary authority.

The regis. would, in the first instance, include only, or scarcely more than those among whom sickness is, for various reasons, already regis. These would be sufficiently numerous for a general and speedy estimate of the prevalence in every part of the country of the diseases which are the greatest causes of misery and the most likely to be prevented by due care. They would include all the sick attended under the Poor Law; the inmates of nearly all charitable inst.; patients in hospitals, asylums, and dispensaries; the workmen in some mines, factories, and other large estab., in which great numbers of persons are under the care of medical men who are obliged to make returns of all the sick they treat.

In all these cases some sort of record is made of sicknesses; but however useful the records may be for private or local purposes, they are useless for any general or national purpose: being without uniformity, and therefore unfit for either summary or comparison. In many instances these local records include more particulars than would be necessary for a general regis.—such as the name of the disease in every case; the name, residence, and occupation, etc., of the patient. Details of this kind would be usefully preserved for local purposes; but the general purposes of the regis. of sickness would be sufficiently served by a central regis. of only the few most important facts; and by the central sanitary authority and his officers having access to all local regis. The method of regis may be safely left to the department of the Reg.-Gen.

The practicability of such a regis. is proved by its having been carried out by the medical authorities in the army, and by private exertions at Newcastle-on-Tyne, in Manchester and Salford; and for a time by the Lond. med. officers of health. The system maintained for the regis. of the contagious diseases of animals in the veterinary department of the Privy Council—a regis. not only of the first occurrence, but of the progress of every case, may be taken for a model of that which it may be hoped will some day be maintained for the regis. of preventible diseases among men.

If the regis. of sickness be added to the work of the Reg.-General's office, it will make the relations of that office to the public health so much larger than to any other subjects, that it would be advisable that the office should be a department under the proposed Central Sanitary Authority.

It was to this Commission that the remarks of Major Graham, the Reg.-Gen., already quoted, were addressed. [F. SOS.] [HEALTH INS.] [SICKNESS.]

DISEASES, RELATIVE FATALITY OF.—Under DEATH, CAUSES OF, we have given many details of the regis. causes of death in this country at various periods during the past several centuries; but it is only from the more recent returns that any really reliable data can be obtained.

It has been found by an analysis of the returns of the Reg.-Gen. that of the total ann. deaths in E. and W. about 1 in every 6 is attributed to zymotic disease; while consumption claimed about 1 in every 9. The T. given at p. 210 of the present vol. shows the proportional number of deaths from each cause to 1,000,000 deaths from all causes during what may be regarded as a healthy year (1870); while a preceding T. (p. 204) showed the proportions over a period of 7 years.

The returns for 1871 have been subjected to a still further scrutiny. After deducting from the total deaths of that year all those under 1 year of age, viz. 125,865, or 5'52 p. 1000, the residue of the deaths amounted to 389,011, or 17'08 p. 1000—giving the lifetime of those who survived the first year at 58'51 years. The deaths during 1871 were within '2 p. 1000 of the average of the preceding 34 years. The deaths from smallpox were however greatly above the average—the deaths during the preceding 24 years not having exceeded 8000, while in 1869 they were only 1565, and in 1870, 2620. From the returns of 1871 the mathematical prob. of dying from any one of the leading specified diseases has been calculated (see the annexed table):

It must always be remembered that the *Deaths out of the living, and not the proportion they bear to the mort.* from all causes, is the true index of the fatality of particular diseases. In our art. DISEASE, under date 1872, some further facts bearing upon this part of the subject will be found. [DEATH, CAUSES OF.] [PROBABILITY OF DYING.]

Class of Disease.	Total Number of Deaths.	No. of Deaths per Thousand.	Probability against any person dying of the specific disease during any one year.
Zymotic class, including } smallpox, etc.	124,126	5'448	182 to 1
Smallpox, at rate of 1871	23,126	1'01	989 ,, 1
Hydrophobia	56	'0024	416,665 ,, 1
Delirium tremens	370	'016	62,499 ,, 1
Intemperance	370	'016	62,499 ,, 1
Bronchitis	48,116	2'112	472 ,, 1
Disease of digestive or- } gans, including liver }	21,625	'95	1,052 ,, 1
Disease of the liver	8,711	'38	2,631 ,, 1
Child-bearing	2,471	'0108	—
Heart disease	26,190	1'15	868 ,, 1
Affections of brain, } nerves, etc.	25,309	1'11	900 ,, 1
All violent death	15,903	'752	1,319 ,, 1
Railway accidents	1,126	'05	20,000 ,, 1
Asphyxia, or suspension } of respiration	5,021	'23	4,347 ,, 1
Murder and manslaughter	381	'017	58,823 ,, 1
Suicide	1,495	'065	15,384 ,, 1
Scalds and burns	2,612	'115	8,700 ,, 1
Horses, or horse conveyance	4,464	'065	15,621 ,, 1

DISEASES, STATISTICS OF.—As a contribution to the general statistics of disease we give the annexed tables from the returns of the Metropolitan Free Hospital, Devonshire Square, Lond., instituted 1836, "for the immediate gratuitous relief of the sick poor of every nation and creed, without the delay of a letter of recommendation."

On this part of the subject it will be advantageous to quote from an art. by Mr. W. S. B. Woolhouse, *On the Philosophy of Statistics*, which appeared in the "Companion to the Almanack," 1872:

Medical statistics are closely connected with the subject of pop., and present the greatest difficulties to scientific investigation. The progress of medical science is necessarily slow and uncertain: for this reason—that the phenomena observed owe their origin to causes that are innumerable, and that, consequently, they seldom admit of being compared one with another. If there were rigorous identity in all constitutions, then one disease followed by a cure, and well observed, would be sufficient to obtain a similar success every time that the same disease was reproduced in other individuals. But this perfect identity cannot reasonably be supposed to exist: and if it were absolutely requisite to foresee all the cases which could be presented, so as to collect sufficient obs. to verify all possible combinations, we should despair of ever arriving at anything satisfactory. Looking, however, at the broader lines of distinction, there does not really exist a very formidable number of essentially different cases: although the causes which influence one disease are in general both numerous and susceptible of variation. It is therefore only necessary to distinguish the more prominent causes which show a very decided individual influence, and to ascertain from a sufficient number of obs. the degree of energy which belongs to each. In medical statistics relating to public health, in consequence of larger numbers, the facts are, in the aggregate, less complicated, and therefore more easily susceptible of a statistical analysis.

In the prosecution of medical science there are two distinct departments which may be conveniently separated. The successful cure of the patient depends upon a compound event, viz.—1. That the doctor shall discover the nature of the disease.

2. That he shall know the mode of treatment to be adopted. The former of these inquiries should have the precedence; diagnostics should always precede therapeutics. Investigation should first be directed to questions of diagnostics, or the distinguishing of symptoms. Such symptoms being given, what is the prob. that the patient is affected by one malady rather than another? What is the prob. of its duration, of its intermittence, and of its passing into a chronic state when it is abandoned to the operation of nature only? These questions, among others of equal importance, being once resolved, would constitute the surest basis for the study of the influence of medicine. In all these, as in other inquiries, the student should inform himself by obs.; collect and analyze well-recorded facts; and render them as comparable as possible before seeking to discuss them with a view of deducing their relations, and methodically proceeding to the appreciation of causes.

In the *Medical Times and Gazette*, 1853, was given a T. compiled by Mr. B. Smith, showing the mort. for the year 1852, and in each week of the year the several diseases, births and deaths of males and females, age at death, the districts in which the deaths occurred, the temperature and meteorology, and the increase of pop. The T. is reprinted in the *Assu. Mag.* vol. iii. p. 252, and will be found useful as a model.

DISEASES, TRANSMISSION OF.—See DISEASES, HEREDITARY TRANSMISSION OF.

DISEMBOWELLING.—This mode of execution, which is now confined to some of the Eastern nations, was constantly applied to convicted traitors in England during the reigns of the Henrys. During the reign of Elizabeth, "of glorious memory," numerous Roman Catholics were thus murdered.

TABLE 1.—*Number of Patients attended ann. during 21 years.*

	Medical.	Surgical.	Total.
July to Dec.			
1851	14,496	6346	20,842
Year 1852	34,434	15,112	49,546
" 1853	36,543	13,897	50,440
" 1854	40,210	17,063	57,273
" 1855	33,025	17,632	50,657
" 1856	30,299	18,892	49,191
" 1857	28,125	18,044	46,169
" 1858	33,231	20,280	53,511
" 1859	34,048	20,050	54,098
" 1860	53,732	24,100	77,832
" 1861	65,734	27,446	93,180
" 1862	71,133	32,850	103,983
" 1863	55,289	31,514	86,803
" 1864	52,261	33,486	85,747
" 1865	48,994	35,753	84,747
" 1866	44,624	30,245	74,869
" 1867	45,419	33,568	78,987
" 1868	47,817	36,086	83,903
" 1869	47,787	32,646	80,433
" 1870	46,939	31,753	78,692
" 1871	46,411	30,446	76,857
Total ...	910,551	527,209	1,437,760

TABLE 2.—*Monthly Attendance of Patients during 1871.*

	Medical.	Surgical.	Total.	New Cases	Jews.
January ..	3101	2248	5349	2125	1220
February ..	3593	2352	5945	2177	1255
March ...	3795	2309	6104	2111	1179
April	4452	2463	6915	2631	1067
May	3407	2705	6112	2217	1177
June	3455	2165	5620	2154	1208
July	4243	2931	7174	2957	1511
August ...	3457	2614	6071	2516	1344
September	4673	3922	8595	3725	2082
October...	4105	2307	6412	2536	1358
November	3824	2186	6010	2550	1254
December	4306	2244	6550	2925	1533
Total ...	46,411	30,446	76,857	30,624	16,188

DISHONEST CLAIMS.—The question as to what proportion of the claims made upon Ins.

Asso. are dishonest—as distinguished from purely fraudulent—is a problem which even the science of Prob. has been unable to solve. The proportions in fact vary very much with the nature of the bus. In *Marine* Ins. the phases of fraud are very varied, and we are disposed to think that about *one-third* in number (but not in amount) of the claims paid are more or less dishonest. In *Life* Ins. the proportion is much smaller. In *Fire* Ins. it is prob. larger—perhaps fully *one-half*. In *Accident* Ins. the proportion of dishonest claims—dishonest in the shape of claiming large compensation for small injuries—is considerable; prob. *one-third* of the claims paid are dishonest in this respect. In *Fidelity* Ins. there does not now seem to be very much room for fraud. In *Glass* Ins. prob. *one-fourth* of all the claims made are for breakages not arising within the conditions of the pol. In *Cattle* Ins. a great many dishonest claims are encountered. In *Hail* Ins. there is not much room for dishonesty. In *Carriage* Ins. dishonesty finds great scope. In *Health* Ins. dishonest claims are very prevalent.

Regarding *Fire* claims in the U.S. we have the following testimony from a writer of considerable practical experience. Griswold, in his *Fire Underwriter's Text Book*, says:

As it is estimated that *fully two-thirds* of our fires are incendiary, originating in fraud, this class will naturally occupy a large share of the adjuster's attention; and inasmuch as parties who intend to defraud ins. cos. in this manner will lay their plans with more or less skill and shrewdness, in order to avoid suspicion, they will require to be met with zeal, prudence, and ability, on the part of the adjuster. Such attempts are not unfrequently frustrated by a system of close watching and masterly inactivity: for they cannot bear the test of delay and constant scrutiny. [CLAIMS.] [DISABLED.] [FRAUDULENT CLAIMS.] [LOSSES.]

DISINFECTANTS.—Mechanical and other agents which destroy miasmata, both odorous and inodorous.**DISINHERITOR.**—One who puts another out of his inheritance.**DISLOCATION** (from *disloco*, to put out of place).—The displacement of the articular surfaces of a bone from their natural situation. The term is nearly synonymous with *luxation*.—*Hoblyn*.

DISNEY, JOHN, Barrister-at-Law, pub. in Lond. in 1806, *Laws of Gaming, Wagers*, etc. The work barely touches upon the interesting subject of INS. WAGERS.

DISORDER TENDING TO SHORTEN LIFE.—See DISEASE OR DISORDER, etc.**DISPACHEUR.**—The title of Continental average-staters. He is often also an advocate.

DISPENSARIES, for supplying the poor with medical advice and medicines gratis, began in Lond. in 1770. They have conferred and are conferring vast blessings.

DISPENSING POWER OF THE CROWN.—Asserted by some of our sovereigns, and employed for setting aside laws. It has been on certain occasions exercised in the case of embargoes upon ships. [EMBARGOES.]

DISPOSITION TO DISEASE.—See DISEASE, PREDISPOSITION TO.

DISSECTION (from *disseco*, to cut in pieces).—The anatomical examination of a dead body; the display of the different structures of the human body by means of the scalpel: comprising the several branches called *osteotomy*, *myotomy*, *neurotomy*, etc. The 9 Geo. IV. c. 31, s. iv. (1828) empowered the Judge to condemn murderers, and those accessory to murder, "either to be dissected or hung in chains." This power was repealed by 2 & 3 Wm. IV. c. 75, s. 16 (1832).

DISSENTERS AND GENERAL F. AND L. ASSU. CO.—Founded in 1837. In 1849 its name was modified to the *General*, etc., under which title we shall give the hist. of the Co.

DISSOLUTION OF INS. ASSO.—All properly drawn Deeds of Sett. or Art. of Asso. contain provisions for dissolution in the event of certain contingencies, as an amalgamation; or the determination of a certain proportion of the members to discontinue the enterprise; or on the loss of a certain specified proportion of the paid-up cap. The manner in which, and the persons by whom, the dissolution shall be conducted are also usually provided for. Where no such specific provisions are contained, the dissolution, if it becomes necessary, will be in the shape of a winding-up under the Joint-Stock Cos. Acts, 1862-7.

An impression at one time prevailed that a re-insurance of the outstanding risks, by amalg. or otherwise, followed by resolutions to dissolve, would be sufficient to free the shareholders from all subsequent responsibility. This is an illusion. It is impossible for the members of a co. or asso. to get rid of their liabilities as between themselves and their creditors, by simply agreeing to dissolve, or by trans. their rights, and (so far as they can) their liabilities, to some other asso. Although in that view the asso. may have trans. all its assets and liabilities to another asso., the creditors of the orig. asso. can still sue it upon any liability which shall mature and remain unpaid; and, having obtained judgment, can enforce that judgment against it, and its shareholders, just as if no amalg. and dissolution had taken place. The above remarks do not of course apply to cases of dissolution or amalg. effected under the provisions of any Act of Parl. which expressly or impliedly affects the rights of creditors.—*Lindley*.

This principle was fully estab. in various cases arising under the *Albert* arbitration. It is still more conclusively settled in *Barnes' case*, arising out of the *European* arbitration. [LIABILITY, LIMITATION OF.]

In the case of a L. Ins. asso. where the contracts may continue to run for many years after a supposed dissolution, and a supposed cessation of liability on the part of the

shareholder, this is a very serious matter, and one which shows the necessity for the greatest caution in providing a fund out of which the outstanding liabilities existing at the date of trans. shall be *absolutely provided for*. The mere guarantee of another co., which itself may not pay, is of no practical avail. [NOVATION.]

In an asso. constituted under the Limited Liability Law, where the shares are fully paid up in a *bond fide* manner, the form of dissolution is hardly necessary. The natural course would be a formal winding-up. [WINDING-UP.]

It is possible to dissolve any co. (not constituted by charter) on a mutual agreement of *all* the shareholders and of *all* the pol.-holders; but as such a state of things can hardly ever occur, we do not dwell upon it. If the *consent* of all the holders of L. pol. in any asso. can be obtained, *then* one of the great difficulties already indicated would be removed.

It was settled in *King v. Accumulative L.* that a L. ins. office is not obliged to carry on its bus. for the purpose of earning bonuses. On the other hand, in *Kearns v. Leaf* [Chairman of *Argus*], 1862-4, it was *held*, that the Court of Equity may interfere to restrain an asso. from disposing of its assets differently from the mode provided in the constitution of the co. [AMALGAMATION.] [LEGIS. FOR AND AFFECTING INS. ASSO.]

DISSOLVE.—To put an end to; cancel, abrogate, annul. The term is applied to an injunction in Chancery, as *discharge* is to a rule *nisi* in Common Law. If an injunction has been obtained by a misrepresentation of facts, it will be *dissolved*, although on the merits it is called for.

DISTANCE OF OTHER BUILDINGS.—It is frequently an important element, in regard to the acceptance or otherwise of fire risks, to be informed of the existence of other buildings in dangerous proximity. What constitutes "dangerous proximity" will depend upon various circumstances—as the materials of which the buildings insured are constructed, and the trade carried on therein, or the goods stored therein; or the materials of which the other buildings are constructed, and the trade carried on, or goods stored therein. In towns where the buildings are mainly of wood, the considerations here indicated are of the first importance. In the manufacturing districts the point has to be regarded.

In the U.S., in consequence of the number of wooden buildings in many of the towns, the question assumes great importance, and numerous cases arising out of it have been before the Courts there. We shall notice one or two of the more important.

In *Stebbins v. Globe Ins. Co.*, N.Y., 1829, where the insured had represented the ground adjoining the property to be insured as "vacant," and subsequent to the ins. other buildings were erected, it was *held*, that there was no continuing warranty that the ground should remain vacant during the term of pol., and there being no prohibition in the pol. against the erection of such buildings, the insured might recover. [2 Hall N.Y. 632.]

In the case of *Dennison v. Thomasin Mut. Ins. Co.*, 1841, the facts were these. In reply to the question in the proposal form as to "the distance of other buildings," the answer was, "east side of the block, small one-storey sheds, and would not endanger the building if they should burn." The fire was communicated through one of the buildings referred to, and caused the destruction of the property insured:—*Held*, that it was not a misrepresentation, but an error of judgment, and did not avoid the pol. In the same case another point arose. The insured omitted to mention certain other buildings standing 49 feet off the building insured, in another street, from which fire was accidentally communicated to the property insured:—*Held*, that if, as a man of ordinary capacity, the insured ought to have apprehended that a fire originating in said wooden buildings would have endangered his house, then he ought to have named those buildings in reply to the interrogatory propounded; for what a man ought to have known he must be presumed to have known. But this knowledge must be something more than that by possibility a fire so originating might have endangered his house. [20 Me. 125.]

In *Burritt v. Saratoga County Mut. F. Ins. Co.*, 1843, where the insured had, in his written application, in answer to the following question, viz. "Relative situation as to other buildings—distance from each, if less than 10 rods," mentioned 5 buildings, but omitted to mention several others within 10 rods, and the pol. contained the following clause: "Reference being had to the application for a more particular description, and as forming a part of this pol.," it was *held*, that the statement in the application was a warranty, and that the existence of other buildings within the prescribed distance avoided the pol., whether that fact was material to the risk or not. And when one of the conditions of ins. was, that any misrepresentation or concealment in the application should render the pol. void and of no effect:—*Held*, that any misrepresentation or concealment, however immaterial, would render the pol. void. [5 Hill N.Y. 188.]

In *Sexton v. Montgomery County Mut. Ins. Co.*, 1848, where, in the application for ins. on *personal property*—which application was referred to in the pol. as forming part thereof—was written, in answer to the question "where situated, of what materials, and size of building, etc., and relative situation as to other buildings, distance from each if less than 10 rods," a description of several buildings standing within 10 rods on the several sides of the one in which the ins. goods were, but several others beyond them, within the distance of 10 rods, were not mentioned; the Court, on the above facts, said, "I think there can be no doubt but that, had this been an ins. upon real estate, the statement as to the distance of the buildings would have been a warranty. But it is said that the rule is

different in the case of personal property. If this be the law, I doubt very much whether it is applicable where personal property only is insured; and the statement respecting other buildings within 10 rods can only refer to those within 10 rods of that in which the goods are kept." [9 Barb. N.Y. 191.]

In *Masters v. Madison County Mut. Ins. Co.*, 1851, the application was referred to as forming part of the pol., one question of which was, "How bounded, and distance from other buildings, if less than 10 rods, etc." The surveyor and agent of the Co., who, by a condition of the pol., was made the agent of the applicant, examined the premises alone, and put in as answer to the question the nearest buildings, without mentioning others that were within 10 rods:—*Held*, that the putting down the nearest buildings only did not amount to a warranty that there were no others within the distance of 10 rods, and that if there were other buildings, it only amounted to a withholding information called for by the interrogatory; upon which the question would arise whether it is material to the risk, which is a question of fact proper to be submitted to the jury. [11 Barb. N.Y. 624.]

In *Kennedy v. St. Lawrence County Mut. Ins. Co.*, 1851, where, in an ins. on goods, the application was referred to as forming part of the pol., and the insured, in answer to a question in the application, failed to state all the buildings within ten rods, it was *held*, that the statement in the application was a warranty that no other buildings than those mentioned existed within ten rods, and that his failure to name all avoided the pol.: although the agent of the Co. filled up the application, and knew of the existence of the other buildings. [10 Barb. N.Y. 285.]

In *Lindsay v. Union Mut. F. Ins. Co.*, 1855, where the insured in his application stated that two buildings were to be moved 15 feet, and a loss occurred before removal, *held*, the insured was entitled to a reasonable time to remove them, and what was a reasonable time was a question for the jury. [3 R.I. 157.]

In *Clark v. Union Mut. F. Ins. Co.*, 1860, where the insured signed the application in blank, and agreed with the agent that the latter should make the survey, and it was so filled up as not to show correctly the occupancy and distance of other buildings within six rods, but the agent knew the situation and occupancy of the same:—*Held*, first, that the question whether there had been a misrepresentation or concealment material to the risk on the part of the insured, was for the jury to determine; second, that notwithstanding a by-law which provided that, "in case the application is made through an agent, the applicant shall be held liable for the representation of such agent," the Co. were chargeable with the knowledge of the agent, and were estopped to set up a misrepresentation or concealment of such facts as a defence; and that the agent need not have a personal knowledge by acquaintance with or examination of the premises: but that knowledge derived from any source would be sufficient to estop the Co. [40 N.H. 333.] [CONCEALMENT.] [CONSTRUCTION.] [INCREASE OF RISK.]

DISTEMPER (*Catarrhus caninus*).—An affection occurring among dogs, and vulgarly called the *snaffles*, *snuffles*, from the affection of the nostrils.

DISTORTION (from *distorqueo*, to wrest on one side).—A term applied to the spine or limbs, when they are bent from their natural form. When congenital, it is termed *malformation*.

DISTRAIN.—To make seizure of goods or chattels by way of distress. Hence *Distraint*, seizure; and *Distraîner* [or *Distrainor*], he who seizes a distress.

DISTRIBUTION.—The act of dealing out to others; dispensation.

DISTRIBUTION OF SURPLUS.—See **SURPLUS**, **DISTRIBUTION OF**.

DISTRIBUTIONS, STATUTE OF.—The 22 & 23 Car. II. c. 10, explained by 29 Car. II. c. 3, for distributing the estate and effects of persons dying without leaving any will, enacts, that the surplus of intestates' estates, after payment of all just debts and demands, shall,—except in the case of married women, the administration and enjoyment of whose estate belongs by the principle of the Common Law to their husbands [now in some respects modified by the Married Women's Property Act, 1870—33 & 34 Vict. c. 93].—after the expiration of one full year from the death of the intestate, be distributed in the following manner: one-third to the widow of intestate, and the residue in equal proportions to his children, or, if dead, to their representatives, that is, their lineal descendants. If there be no children or legal representatives subsisting, then a moiety of the entire estate shall go to the widow, and a moiety to the next of kindred, in an equal degree, and their representatives. If no widow, the whole shall go to the children. If neither widow nor children, the whole shall be distributed amongst the next-of-kin, in equal degree, and their representatives; but no representatives are admitted among collaterals further than the children of the intestate's brothers and sisters. The intestate's mother-in-law takes nothing. The following relatives are considered as of the same degree of kindred: (1) Parents and children; (2) grandfather, grandson, and brother; (3) great-grandfather, great-grandson, uncle and nephew; (4) great-great-grandfather, great-great-grandson, great-uncle, great-nephew and first cousin. The half-blood take equally with the whole blood, in the same degree.

The 19 & 20 Vict. c. 94 (1856), abolishes all special local customs concerning the distribution of personal estates of intestates. [MARRIED WOMEN'S PROPERTY ACT.]

DISTRICT FIRE INS. CO., THE.—Founded in Birmingham in 1834, with an authorized cap. of £300,000, in 10,000 shares of £30; 10 p.c. or £30,000 paid up; power to increase. No proprietor to hold less than 5 shares. The D. of Sett. bore date 1st Oct. 1834, and there was power therein to extend the bus. to L. Ins. with the requisite change of name. This was never done.

In 1847 the Co. obtained a special Act of Parl.—10 Vict. c. iv.—*An Act for incorp. the District Fire Ins. Co. of Birmingham by the name of "The District Fire Ins. Co." ; for enabling the said Co. to sue and be sued ; and for other purposes relating to the said Co.* The Co. obtained by this means a qualified incorp. only; the shareholders remaining still liable on judgments.

The progress of the Co. was steady. Its fire duty return in 1835 was £1480; in 1836 £2123. The affairs of the Co. were conducted with great care and respectability by Mr. Henry Low, who was for many years its Manager.

In 1865 the bus. of the co. was trans. to the *Alliance*; its fire duty having then reached £8610; and its prem. income being then £9165.

DISTRICT SURVEYORS.—Persons appointed in most large towns and cities in the U.K. to supervise the construction of new buildings, and especially to see that the provisions of the Building Acts, as to thickness of walls, cubical space of buildings, isolation of flues, etc., are carried into effect. Upon their vigilance or otherwise the destruction of modern buildings by fire in a great degree depends.

DISTRINGAS (from the Latin, *that you distrain*; anciently called *constringas*).—The writ of Distringas is issued for various purposes. Among these are (1) to prevent the payment of any money, or dividends; (2) or the transfer of any stocks. The effect of this writ is temporary, and has to be promptly followed up by other measures.

DIVERS, MARINE.—These are the salvage men of the sea; that is, such of them as are employed to recover treasure and merchandize from wrecked and foundered vessels. We have no statistics of the number of men employed, or of the amount of treasure and property recovered. We observe that the Salvage Committee of Lloyds have called into requisition the aid of divers in several important cases recently.

Divers cannot remain in the water more than 1½ or 2 minutes at the most without the aid of some mechanical contrivance, of which the diving-helmet is considered the most effective, as an experienced operator can remain under water as long as 5 or 6 hours at a time. The diving-bell, diving-helmet, etc., have greatly facilitated the operations of divers. [DIVING-BELL.] [DIVING-HELMET.]

We find in Malynes' *Lex Mercatoria* (1622) the following remarkable passage:

So hath a diver for drowned goods, one third part upon eight cubits deepe; and upon fiftene cubits, he hath halfe; and upon one cubit but a tenth; which of late years was accordingly allowed in some part of Ireland, for drawing up some ordnance of the ships which of the Spanish Armada did perish upon the coast, ann. 1588.

The ship *Hamilla Mitchell* was lost in Aug. 1869, on the Leuconna rocks, near Shanghai. The treasure was recovered by divers sent out by Lloyds in the following March, at some 23 fathoms depth.

The *Carnatic* ss., carrying H. M.'s Mails, was stranded on a reef off Shadwan, in the Sea of Suez, in Sept. 1869. Besides a valuable cargo, she had £40,000 in gold and silver. The vessel settled down into deep water. A party of divers went out, and all the specie was recovered but one bar of silver. Total value of property recovered £48,000.

Many other cases are on record.

DIVIDEND (Lat. *dividendus*, to be divided).—In arithmetic the number or quantity given to be divided. In commerce, the name given to the payment made to creditors out of the estate of a bankrupt. Also to the ann. interest payable upon the National Debt and other public funds, or upon the capital invested in joint-stock enterprise. In America the term is used in relation to the profits apportioned to life policies, and which we term bonus. In the early D. of Sett. of the *Equitable* So. the word "dividend" was used in the sense of bonus. Dr. Price, in his *Rev. Payments*, 3rd ed. 1773, p. 130, uses the word in the same sense.

In the English case, *Taylor v. Ashton and others*, 1843, it was held, that the declaration of a dividend out of cap. was virtually such a false representation as to enable a person subsequently taking shares to recover damages; although it would not entitle him to repudiate the shares, and thereby to injure third parties who might have been induced to take shares or lend money to the co. on the faith of his being a shareholder.

There have been several cases before the U.S. Courts relating specifically to the dealings of ins. asso.

In *De Peyster v. American F. Ins. Co.*, 1837, it was held, that the int. on the cap., stock, and the prems., constitute the ordinary fund out of which losses are to be paid; and the surplus of that fund, after paying such losses, constitutes the surplus profits, which alone are to be divided among the stockholders. The cap. is security for extraordinary losses. Unearned prems. are surplus *funds*, but not surplus *profits*, and should not be divided without having enough in hand to meet prob. losses. [6 Paige, Ch. N.Y. 486.] See also *Scott v. Eagle F. Ins. Co.*, 1838 [7 Paige, Ch. N.Y. 198].

In *Lexington L., F., and M. Ins. Co. v. Page*, 1856, it was held, that a corp. is not justified in treating as profits, subject to be divided, prems. received upon unexpired risks,

when it has not a fund sufficient, independent thereof, to meet all liabilities that might accrue on the pending risks.

And in the same case, on suit brought against the directors and stockholders of an ins. co. by a creditor, 5 years after the declaration of an illegal dividend to the stockholders, it was *held*, that dividends declared by the directors, and received by the stockholders, may be reclaimed by the directors, if illegally declared under a misapprehension of the right to declare them; and if there be an assignment by the corp. to a trustee, such right to reclaim dividends, improperly paid, passes to the assignee, if the terms of the assignment are sufficiently comprehensive to embrace them. [17 B. Monroe, Ky. 412.]

DIVING-BELL.—An apparatus by means of which persons are let down and enabled to remain under water for a considerable time. Aristotle is supposed to mention, though obscurely, this appliance, B.C. 325. It was used in Europe A.D. 1509; and it is said to have been used on the coast of Mull in searching for the wreck of part of the Spanish Armada before 1662. Halley, of life-table renown, improved the diving-bell very considerably; and it has been claimed for him that by its use he was the first who set foot on the bottom of the sea. Mr. Smeaton, the celebrated engineer, improved it considerably about 1788. [DIVERS.]

DIVING-HELMET.—A mechanical appliance, of modern invention, by means of which divers are enabled to remain under water for as long as 5 or 6 hours at a time, having a constant supply of air by means of flexible waterproof pipes. The helmet allows much more freedom of action than could ever be attained by means of the bell; and by its means all the achievements of modern divers have been accomplished. [DIVERS.]

DIVISION OF PROFITS.—See SURPLUS, DISTRIBUTION OF.

DIVORCE.—The dissolution of the marriage contract. Divorce was permitted by the law of Moses (*Deut.* xxiv. 1), 1451 B.C., but forbidden by Christ, except for adultery (*Matt.* v. 31, 32). It was put in practice by Spurius Carvilius Ruga at Rome, 234 B.C. Divorces are of two kinds: one, *à vinculo matrimonii* (total divorce); the other, *à mensâ et thoro* (from board and bed). Divorces were attempted to be made of more easy attainment in England in 1539. In 1857, by 20 & 21 Vict. c. 85, the jurisdiction of the Ecclesiastical Courts respecting divorce, etc., was abolished, and the Divorce and Matrimonial Causes Court instituted.

In England there had been from the Reformation up to 1857, 317 divorces by Act of Parl. In Scotland between 1846 and 1857, 174 divorces by law. In 1861 a new law respecting divorces in Scotland was passed. Between 1856 and 1867 no less than 1279 dissolutions of marriage and 213 judicial separations had been decreed by the English Court. The ann. number of petitions appears to have increased. In 1869, 265 petitions for dissolution and 86 for judicial separation were filed.

The re-marriages of divorced persons do not appear to be very many. The returns of the Reg.-Gen. for E. and W. in 1868 show only 40 marriages after divorce. A table given in the 33rd Rep. shows for each of the 10 years—1861–70—the number of marriages of divorced men and women in England. The total is 306. There were 141 divorced men married to spinsters, and 25 divorced men married to widows; there were 101 bachelors and 33 widowers married to divorced women; and there were 6 marriages between divorced men and divorced women. In 1870 there was no marriage of this last class, but there were 34 marriages in which one or other of the parties had been divorced; the number of decrees (absolute) for divorce in that year was 154. [MARRIAGE.]

In the U.S. case of *McKee v. Phanix Ins. Co.*, 1859, where a husband's life was ins. for the benefit of his wife, the pol. was held not to be determined by her obtaining a divorce from him, as she had an int. when the pol. was obtained. "The Court place their decision (says Bliss) apparently on the ground that the wife's int. still continued, because she had 4 children whom she supported, but who had the right to look to the husband for support." But the case, he considered, might be sustained on the general doctrine of insurable interest, as now held. [INSURABLE INT.]

DIVORCES, INSURANCE AGAINST.—In an age which could deliberately propound a scheme for the ins. of female chastity—and that such a scheme was propounded there appears proof not to be gainsaid—it would almost follow that there should be some protection against divorces: and accordingly we find that prior to 1720 there was a project for "Ins. against Divorces" set on foot; but what fate it met with, after an interval of a century and a half, can only be surmised. Maitland, in his History of London, mentions this Co.

DIXON, FRANCIS B., Counsellor-at-Law and Average-Adjuster, N.Y., author of the following works:—1. *The Law of Shipping, and Merchants' and Shipmasters' Guide.* 2. *Handbook of Marine Ins. and Average.* 3. 1867. *A Practical Treatise on the Adjustment of General Average in the United States and other Countries; including the elements of maritime and ins. law; also the rights and liabilities of underwriters and shipowners, and the general duties of shipmasters.* The works of this writer are clear and distinct, and evince a considerable knowledge of the subjects treated of. They will be found quoted in these pages.

DIXON, W. F., was Sec. of *Sheffield F. and L. Office* for some years down to 1843.

DOBSON, JOSEPH SOUCH (an American), was committed to Newgate, in June, 1871, on

the charge of sinking the ship *Esmeralda*, on a voyage from Cartagena to Liverpool, she having gone out of her course nearly to Jamaica, and ultimately went down in smooth water. The ship and cargo were ins. for £5500, which was said to be far beyond their value.

DOCK, DOCKS (from the German *Docke*).—An artificial basin for the reception of ships. Docks are of several descriptions; either wet or dry, open or inclosed. The former are used for the purpose of loading or unloading a ship's cargo, out of the influence of the tide; and are constructed with gates, which, when shut, keep the ship constantly afloat. The second class of docks are intended for the building, repairing, and examining of ships, which are admitted to them at flood-tide; and are so called because they are either left dry by the ebbing of the sea, or are rendered so by mechanical appliances. The open docks are those which are open to the public, such as the Liverpool or Havre docks; the inclosed ones are those where the circulation of the public is impeded by an inclosure wall, as in the London Docks, the Southampton Docks, and others.—*Brande*.

The principal docks of *Lond.* are the following, giving date of opening:—*Commercial*, [? projected] 1660; *West India*, 1802; *London*, 1805; *East India*, 1806; *St. Katherine's*, 1828; *Victoria*, 1855; *Millwall*, 1868.

Liverpool.—Old Dock, opened 1699 [and claimed to be the first in England], closed 1826; *King's Dock*, 1785; *Clarence Dock*, 1830; since which a continued succession of docks has been constructed.

In 1810 the dock space was 26 acres, for ships to the amount of 704,000 tons; in 1857 209 acres, tonnage 4,320,000.

There are now docks in connexion with most of the great seaports in the U.K.

These several docks are mostly surrounded by extensive warehouses, in which the merchandize brought in by the ships is stored until required for home consumption, or required to be exported to other parts of the globe.

With the arrival of the ship in dock, or within a certain number of hours thereafter, the risk under the marine ins. pol. terminates [TERMINATION OF RISK]; but a no less serious risk commences—the risk of destruction by fire, to which both ship and cargo become exposed, by reason of proximity to buildings, and to other ships. The ship is generally specifically insured against fire while it remains in dock [SHIPS INS. AGAINST FIRE.] The merchandize, the moment it is unladen, enters upon the fire hazard, which is a special one, regulated in the U.K. by the tariff, and varying as to the rate of prem. with the regulations of the particular dock co. regarding its freedom from fires.

For the reasons last named the term “Docks” conveys a very different idea to the mind of the *Fire* underwriter from that conveyed to the *Marine* underwriter. Dock-keepers are included amongst the “dangerous trades” in fire underwriting.

The following details regarding the appliances for fire extinguishment by several of the principal Lond. docks were given before the Select Parl. Committee on fires in the metropolis, 1862:—

East and West India Docks.—15 land engines; 2 steam tugs fitted up as floating engines; and 12 hydraulic jets, from the hydraulic pump. From this pump, by the pressure in the mains, a jet can be thrown to the height of 180 feet, and by all their power and engines combined, about 18 tons of water per minute can be thrown. The men are exercised monthly, and every man in the docks takes his turn at the drill.

London Docks had 4 land engines, 2 floating engines, and 46 fire cocks. The largest floating engine throws $1\frac{1}{2}$ ton of water per minute. The smaller, 1 ton. The men are drilled every month. A great number of buckets are filled every night and placed on the staircases. The water will rise naturally from the fire cocks to the height of 60 feet. Mr. Richard Randall, the Sup. of these Docks, gave evidence:—The only 2 fires of any magnitude in these docks was one in the South Quay warehouse in 1858, and one in the brandy vault in 1859. Up to 1862 there had been 162 instances of fire occurring in these docks,—many of them on ships in dock,—but they had all been suppressed by the Dock Co.'s own staff, except that of 1858. The value of property belonging to merchants in these docks is generally from £5,000,000 to £6,000,000.

St. Katherine's Docks had 4 land engines, and 1 floating engine; 22 high-pressure stand cocks, and 12 low-pressure ditto. There are also 350 buckets, filled with water, ready for use at a moment's notice. The hose there will stand a pressure of 120 lbs. to the square inch. The warehouses themselves, without the goods in them, are insured for about £400,000. The property in the warehouses, valued at its bonded price, and exclusive of the wines in the vaults, “which are not considered subject to fires,” is worth about £2,000,000. That is exclusive of shipping and lighters with goods in them. Up to 1862 they had only had one fire in 30 years.

Victoria Docks had 10 fire engines, 23 stand pipes, and one floating fire-engine tug. The water main will throw a jet 35 feet high. There is an arrangement with the East London Water Works for a constant supply of water if required. The area of the docks is 100 acres. They have property of merchants in charge to the extent of about £3,000,000. Had a small fire once. Two ships have been on fire. The firemen train once a month, and go with their engines to all the fires in the neighbourhood. Mr. Charles Capper, the late Man., gave evidence.

The Dock Cos. usually have special provisions for guarding against fires inserted in their Acts of Incorp. or Settlement. The Surrey Commercial Dock Co. has such a power in its (local) Act—27 Vict. c. xxxi. (1863), ss. 89, 90. The "Lond. and St. Katherine's Dock Act, 1864,"—27 & 28 Vict. c. clxxviii. (local), passed when these Cos. were amalg. with the Victoria Dock Co. in 1864,—contains special powers enabling the Dockmaster to require the removal of combustible and hazardous goods, under a penalty after 2 hours' neglect of not less than 20s. or more than £5 for every hour in which the same should remain unremoved; and for watching such goods at the expense of the owner (ss. 103-5); and the Dock Co. has power to make bye-laws for preventing damage to the goods entrusted to them; and for directing, regulating, or preventing the use of fires, candles, or lamps within the docks, or on board any vessel therein, and for the prevention of smoking tobacco therein (ss. 113, 125). Provisions are also contained for preventing the introduction of gunpowder or any loaded firearms into the docks (s. 123); or the unloading of more than 25 pounds weight of gunpowder within 200 yards of either dock, or any entrances thereof (s. 124); and special notice is required to be given to the Co. whenever dangerous goods are introduced (s. 128).

The wilfully setting fire to any dock, etc., is by our criminal law deemed a felony.

Several of the Dock Cos. have what are termed "Up-town Warehouses," to which the more valuable classes of merchandize, as silks, teas, etc., are removed. For these there is a special-tariff fire rate. Other portions of the merchandize are removed to wharves on the river, for many of which there are special tariffs. Dutyable articles are removed to bonded warehouses. [WAREHOUSES.] [WHARVES.]

DOCKER, EDWARD, Act. and Sec. of *London Life* since 1847. He entered the office in 1840 as Assist.-Act. under the late Mr. Brooke. Mr. Docker's management secures for the So. a continuance of steady and substantial progress.

DOCKING A SHIP.—The act of drawing her into dry dock, and placing her properly on blocks, in order to give her the required repair, cleanse the bottom, or cover it anew.

DOCKYARDS (Gov.), AVERAGE ANN. SICKNESS AMONG PERSONS EMPLOYED IN. See OCCUPATION.

DOCTORS.—See MEDICAL EXAMINERS; MEDICAL PRACTITIONERS.

DOCTOR'S CERTIFICATE.—See MEDICAL CERTIFICATE; MEDICAL EXAMINATION.

DOCTORS' RISKS.—A technical designation bestowed by the Underwriters at Lloyds upon missing ships, or vessels known to have been disabled, or supposed to have been overtaken by a disastrous storm. Risks upon which the prem. ranges from say 10 up to 90 p.c.

DOCUMENTATION OF A SHIP.—Supplying her with proper documents, according to the requirements of her nationality, or according to the rules of international law. [SHIPS' DOCUMENTS.]

DOCUMENTS.—From the Latin *documentum*, records; writings; precepts, instructions, or directions. In law, written instruments, adduced for the purpose of evidence.

The Life Assu. Cos. Act, 1870, requires certain documents to be filed with the Board of Trade; and further provides (sec. 16) that such documents may be kept by the Regis. of Joint-Stock Cos., or any other officer of the Board of Trade. And sec. 17 provides that all documents deposited may be received in evidence.

DODGSON, THOMAS, was Sec. of *Guarantee So.* for some years, down to 1851.

DODSON, JAMES, F.R.S., "an ingenious and very industrious mathematician in Lond." during the last century; one of the founders, if not the orig. founder, of the *Equitable*, and author of the following works bearing upon our subject:

1742.—*The Anti-Logarithmic Canon. Being a Table of Numbers consisting of Eleven places of Figures corresponding to all Logarithms under 100,000. Whereby the Logarithm for any Number, or the Number for any Logarithm, each under Twelve places of Figures, are readily found. With Precepts and Examples, showing some of the Uses of Logarithms, in facilitating the most difficult Operations in Common Arithmetick, Cases of Interest, Annuities, Mensuration, etc. To which is prefix'd, An Introduction, containing a short Account of Logarithms, and of the most considerable Improvements made since their Invention in the Manner of Constructing them.* By James Dodson. Lond. Printed for James Dodson, at the Hand and Pen in Warwick Lane; and John Wilcox, at Virgil's Head, opposite the New Church in the Strand. 1742. The work is dedicated to Lord Stanhope (Chesterfield). There is an appendix of five pages, not mentioned in the title: "Of Decimal Notation, and its Use in Solving Questions which consist in Fractional Numbers by Logarithms." It was reviewed in the *Works of the Learned* for Sept. 1742, "in so terse and accurate a way, and so free from eulogium (says De Morgan), that I have no doubt the author wrote the article." Dodson, in the preface of the *Canon*, acknowledges much assistance from Robertson, a well-known mathematician of that period.

1747.—*The Calculator: being correct and necessary Tables for Computation. Adapted to Science, Business, and Pleasure.* By James Dodson, Accountant and Teacher of the Mathematics. Lond. Printed for John Wilcox, at Virgil's Head opposite the New Church in the Strand; and James Dodson, next door to the Blue Legg, near Bell Dock, Wapping, M.DCC.XLVII. (octavo half-sheets). This work is dedicated to Wm. Jones. Some copies have another title-page, also of 1747, in which Wilcox alone is mentioned in the imprint. "This means (says De Morgan) that Wilcox took the risk off Dodson's

hands within the year; and thenceforward we no more find him pub. on his own account." The same writer says further of this work :

With the exception of heavy calculators, to whom the *Canon* is occasionally useful—Benjamin Gompertz, for instance, who told me 40 years ago he was always wanting it—this T. is worth three of the *Canon* to anybody. Whoever can catch a copy should keep it. The T. of binomial co-efficients up to the 34th power is very useful. So is the T. of specific gravities. The medley of coins, measures, regular solids, and polygons, roots, logarithms, common, hyperbolic, logistic, trigonometrical, etc., interest, annuities, etc., etc., though not extensive, are great friends at a pinch. For a single book to travel with, and a good chance for anything that can be wanted, I know only Mr. Willich's T. which can compare with it. But Dodson's two or three words to each head in the preliminary index enable the user to find his T. in a moment.

In 1747-8.—Vol. I. of the *Repository*, which was dedicated to De Moivre. "It is not a new custom for authors to dedicate their mathematical works to gentlemen who are the most illustrious ornaments of mathematical sciences; and as the learned world have long since thought it justice to rank you among that number, it will," etc. There was nothing specially bearing upon our subject in that vol.

The 2nd vol. appeared in 1753, and therein were (*inter alia*) many curious questions relating to chances and lotteries; and a great number of questions concerning annuities for lives and their reversions, etc. This vol. is considered to offer the fullest development of De Moivre's hypothesis extant.

The 3rd vol. appeared in 1755, and contained analytical solutions of a great number of the most difficult problems relating to annuities, reversions, survivorships, insurances, and leases dependent on lives; in which it has been endeavoured to exhaust the subject. This vol. was dedicated to the President, Council, and Members of the Royal So.

The 2nd ed. of the *Repository* was pub. in 1775, in 3 vols.

In the intervals between the pub. of the vols. of the *Repository*, Mr. Dodson had submitted to the Royal So. : *Remarks on the Decrement of Life exhibited in the Breslau T. : contained in a Letter to Mr. John Robertson, F.R.S., on the Improvement of the B. of Mort.* This was pub. in the *Phil. Trans.* 1752. In 1753, *On Logarithmic Series*. And in 1754, *A Letter concerning the Value of an Annuity for Life, and the Prob. of a Survivorship*, pub. in *Phil. Trans.* 1754.

In 1750 he had pub. *The Accountant*, etc.; in 1751 an enlarged ed. of *Wingate's Arithmetic*. In 1758 was pub., *An Account of the Methods used to describe Lines on Dr. Halley's Chart of the Terraqueous Globe*, etc., written by Mr. Dodson.

Mr. Dodson lent considerable aid to the early measures taken for founding the *Equitable*—indeed it is by no means clear that he is not entitled to be called the real projector (as distinguished from the founder) of that So. The first T. of prems. used by the So. was prepared by him. He stood in the relation of Consulting Act. to the founders of the So., and was advertised as Act. in 1755; but he died before the formal application for a Charter was made. Dr. Price says, "Mr. Dodson, I find, has furnished the So. with some important T.; and his skill was such that there is no reason to doubt but that they may be depended on." The position of Dodson in relation to the *Equitable* will be discussed in detail in our hist. of that So.

In vol. xiv. of the *Assu. Mag.* (1868) is a characteristic paper by Prof. De Morgan, "Some Account of James Dodson, F.R.S." The writer says:

No life has been written of the orig. projector of the *Equitable* So. except in a column of the *Biographie Universelle*, by M. Nicolette. Dodson's name was, and even still is, so familiar to the act., chiefly through the *Mathematical Repository*, and the impulse he gave to life contin. problems, that this journ. is the proper place of deposit for what can be collected concerning him. . . . He must have had some sort of liberal education; for his use of the Bernouillis, Euler, Ozanam, etc., shows that he read Latin and French. He must have been thrown upon the world with some little command of money. He was able to spend unprofitable years in the construction of his Anti-Logarithmic T., which he pub. on his own account in 1742: it was his first appearance. A publisher's name (Wilcox) is joined with his own in the imprint; but we may be pretty sure that a folio of new T. at £1 2s. 6d. (afterwards reduced to 12s.) by a young man quite unknown, would not find a publisher to take any risk. . . . Again, he had been, as we shall see, a pupil of De Moivre, who was at the top of the tree, and who must have been, at the time of Dodson's pupilage, very well remunerated, as one of the most famous of mathematicians, and Newton's particular friend. Between the *Canon* and the next work on his own account, he added a wife to his means of expenditure, which looks as if his money were not quite gone. He must have married soon after the pub. of the *Canon*, for his first son was born in 1743 [this son afterwards held a position in the *Equitable*]. He was, I suppose, an amateur worker up to this time: for he is not called "teacher of the mathematics" in the title of the *Canon*, though, had he been thus employed, the adv. would have been a very good one: it first appeared in 1747. . . . I trace him through his writings as a private teacher, accountant, surveyor, etc., prob. an answer of actuary's cases, until 1755, when he gained what was for him a splendid rise in the world [Master of the Royal Mathematical School for Mathematics and Navigation attached to Christ's Hospital]. . . . It may be gathered from various circumstances that the post was, in 1755, no mean ad. of station to a private teacher who had lived by all kinds of odd jobs, at "the Blue Legg, near to Bell Dock, Wapping." He gained it, as I suppose, by the influence of Lord Macclesfield, who was then President of the Royal So. . . . He was admitted of the Royal So. Jan. 23, 1755, which was prob. before his appointment to the teachership in the same year. He leaves the character of a useful mathematician, inventive in application, but not in augmentation, of his science. He was eminently effective, and this until long after his death—indeed until 1820 at least—in attracting the attention of students of annu. and assu. to the problems connected with their subject.

He died 23rd Nov. 1757, aged about 50. Those who desire to know the opinion of Dodson's contemporaries of Dodson must consult De Morgan's article. We wonder if men nowadays record in diaries, hereafter to be pub., their likes and dislikes of their literary brotherhood!

DODSON, JAMES, JUN., son of the preceding, "but without the mathematical learning of his father," was Act. of the *Equitable* So. between 1765 and 1767, when, "upon obtaining a place in the Custom House, more suitable to his abilities," he resigned.

DOGGER.—A Dutch smack of about 150 tons, navigated in the German Ocean. It is principally used for fishing on the Dogger Bank.

DOGS.—Every year a number of deaths take place in the U.K. from the bites of dogs not considered mad; but as there is no specific heading in the returns of the Reg.-Gen. for deaths from this cause, we cannot ascertain the precise numbers. *Accident* Cos. pay many claims for non-fatal injuries of this class; *Glass* Ins. Cos. for breakages occasioned by dogs; *Cattle* Ins. Cos. for animals worried to death; many women and children are seriously frightened. Hence the Dogs Act, 1871—34 & 35 Vict. c. 56—the preamble of which recites, "Whereas it is expedient that further protection should be provided against dogs." Dogs were first made the subject of taxation in 1796; again in 1808. In 1866 12s. p.a. realized £219,313. In 1867 an excise duty of 5s. p.a. (in lieu of assessed tax duty) was enforced. In the financial year 1871—2 this was paid upon 1,202,980 dogs, and produced £279,425. Licence duty was paid upon 290,796 dogs in Ireland in 1872. The employment of dogs in drawing carts, etc.,—a frequent cause of accidents,—was abolished in Lond. 1839; in the U.K. 1854. The following statement regarding the ins. of dogs by railway cos. appeared in the *Times* a few months since:

Some weeks ago I came from the King's-cross Station, Lond., to the North of Scotland. I took a first-class ticket and also an ins. ticket, for which latter I paid 3d., and for which I insured my life against accidents on my journey for £1000,—thus paying a prem. of a fraction more than one farthing p.c. A few days since I had occasion to send a dog to Lond. from the same station at which I had arrived some weeks before, and as it was a valuable one I insured its life for £50. For this ins. I was charged £2 ros., or 2400 farthings, being at the rate of 4800 farthings p.c., in fact, paying a prem. to ins. the life of a dog, comparatively, 4800 times larger than I had paid to ins. my own life. The explanation given to me of this disparity was that the co. who had only charged me the one farthing p.c. on my own life was not in any way connected with the railway co., whilst it was the directors of the railway who made me pay the 4800 farthings p.c. for insuring the dog, they being much better aware of the awful risks to which every one, man or dog, is exposed when travelling on their railway, and, of course, making their charges for insurance accordingly. [CATS.] [MAD DOGS.]

DOLLAR, AMERICAN.—Equal to 4s. 2d. English money. In most cases we have reduced American into English money in these pages; and in doing so have invariably, as a matter of convenience in calculation, estimated 5 dollars to the £ stg.

DOLUS CIRCUITU NON PURGATUR.—A legal maxim laid down by Lord Bacon, and frequently applicable to ins. cases: *Fraud is not purged by circuitry.*

DOMESTIC NAVIGATION.—A term applied to the coasting trade.—*Smyth.*

DOMICIL [DOMICILE].—The place where a person has his home. By the term "domicil," in its ordinary acceptation, is meant the place where a person lives or has his home. In this sense the place where a person has his actual residence, inhabitation, or commorancy, is sometimes called his domicil. In a strict and legal sense, that is properly the domicil of a person where he has his true, fixed, permanent home and principal estab.; and to which, whenever he is absent, he has the intention of returning—*animus revertendi*. Two things, then, must concur to constitute domicil: first, residence; and, secondly, the intention of making it the home of the party. There must be the fact and the intent: for, as Pothier has truly observed, a person cannot estab. a domicil in a place except he be *animo et facto*.—*Wharton.*

It not unfrequently happens, in time of war, that the liability under contracts of M. Ins. comes to be determined mainly on the question of domicil. It has been so in regard to contracts of F. Ins.

Arnould declares: "The great principle is, that all men take their commercial character from the place of their domicil."

Lord Kenyon said, in *Tabbs v. Bendelack*, 1802, "All persons who reside and carry on bus. in a country, reaping the advantages of its trade, and contributing to its well-being, must, for the purposes of trade, be considered as belonging to that country." Thus, in the last-named case, where a ship, "warranted American," belonged at the time of making the pol. to a man who, though an American born, had married an English woman, settled his family here, was navigating vessels between America and England, and for the past year had resided in Gt. Brit. without quitting it,—the Court held that this ship, though documented as an American, was not in fact an American-owned ship within the true meaning of the warranty, or so as to be protected by the American flag. On the other hand, property belonging to a belligerent state will be considered as neutral-owned, within the meaning of a warranty of neutrality, if its owner be residing and carrying on his trade in a neutral state at the time the pol. was effected.—*M'Connell v. Hector*, 1802.

It has been solemnly decided, however, in the U.S., and no doubt would be so held in this country, that a man cannot acquire a neutral character for the purposes of commercial protection, or so as to make his property neutral property, by leaving a hostile and estab. himself in a neutral country, *flagrante bello*. Wherever a man may reside, and whatever political character he may have by birth, whether enemy, neutral or ally, yet if during war time he keeps up a commercial estab. in a hostile country, either alone or in partnership, all property connected with such commercial estab. is liable to hostile capture, and, therefore, not neutral within the meaning of a warranty of neutrality. If he that carries

on bus. both in the belligerent and the neutral country resides in the latter, that whatever may be his national character by birth, his property connected with his trading estab. in the neutral country is neutral for all the purposes of protection against hostile capture, and therefore within the meaning of the warranty.—*Wheaton* ; *Arnould*.

If a person leave his own country with the intention of remaining abroad till death, he nevertheless retains his domicile of origin until he fix his domicile in some particular place.

It is a clearly estab. rule that the validity of a will, as regards form, disposing of personal estate, is regulated by the law of the country in which the deceased was domiciled at the time of his death. The application of this rule to the case of Brit. subjects dying abroad, and of foreigners dying in this country, leaving wills, gave rise to great inconvenience ; and accordingly became, in 1861, modified by legal enactment. Two statutes were then enacted : (1) 24 & 25 Vict. c. 94—*An Act to amend the laws with respect to Wills of personal estate made by Brit. subjects*. Wills may be admitted for Probate in Eng. and Ireland, and for confirmation in Scotland, if the same be made according to the forms required, either by the law of the place where it was made, or by the law of the place where the deceased was domiciled when it was made, or by the laws then in force in that part of H.M.'s dominions where he had his domicile of origin, etc.; (2) 24 & 25 Vict. c. 131—*An Act to amend the law in relation to the Wills and Domicil of Brit. subjects dying whilst resident abroad, and of foreigners dying while resident within H.M.'s dominions*. By this latter no Brit. subject was to be deemed to have acquired a domicile in any foreign country unless he should have resided therein for one year immediately preceding his decease, and had deposited with the proper officer a declaration of his intention to be domiciled in such country ; and the same with respect to foreigners residing in Gt. Brit. The Act, however, was only to apply to countries, in either case, where by convention it had been agreed to be applied ; nor until an Order in Council had been pub. in the *Gazette* to that effect.

In the case of persons domiciled abroad, but whose lives are insured in this country, probate or letters of administration, as the case may be, are required to be taken out in this country.

The entire subject is surrounded with technicalities, and cannot be treated popularly.

[BELLIGERENTS.] [NEUTRALITY.] [SHIPS' DOCUMENTS.]

DOMINICA, ISLAND OF.—For account of mort. in, see WEST INDIES.

DOMINIO MARIS.—Dominion of the sea.

DOMINION OF THE SEA.—A right which has been contended for, in turn, by most of the ancient maritime nations, and especially by the Venetians, during a considerable period, and by a formal ann. ceremony. It has also been claimed for England. [SEA, DOMINION OF THE.]

DOMINUS NAVIS.—The absolute owner of a ship.

DOMMAGES ET INTÉRÊTS.—A term drawn from the Roman Law, which signifies *the loss experienced, or the gain failed to be made, by any one, through the non-execution or delay in the execution of an obligation*. The principle is not of general application in England : it does arise in a class of actions which are said "to sound in damages." Under the French law all actions are entitled to this distinction ; although it is not all cases that involve damage accessory to the principal debt or claim. A case arose in Marseilles, in 1768, illustrative of the working of this principle. A notary, Madame ———, had omitted to regis. 2 pols. of ins. in which Honoré Francoul was interested, and the latter instituted his action against her. The sentence condemns Mad. ——— in the losses and damages suffered, *and to be suffered*, by Francoul, through default in the production of the 2 pols. of ins., which she acknowledges not to have been recorded in her registry ; and, at the instance of the king's procureur, also condemns the said Mad. ——— to 500 livres fine to M. the Admiral, for disobeying the directions of the Ord. de la Marine, 1681, with costs and arrest. [CONSEQUENTIAL DAMAGES.] [DAMAGES.]

DONATIO MORTIS CAUSÆ.—A gift of personal property in prospect of death ; a death-bed disposition ; an initiate gift of personalty, consummated by the giver's death. Mr. Bunyon quotes a more complete and lucid definition, viz. "where a man lies in extremity, or being surprised with sickness, and not having an opportunity of making his will, but lest he should die before he make it, he gives with his own hands his goods to his friends. This, if he dies, shall operate as a legacy ; but if he recovers, then does the property revert to him again."

Such a gift differs little from a legacy, except in not requiring the assent of the executor : it is not complete until the death of the donor, and is of no avail against creditors in case of a deficiency of assets ; and by the 36 Geo. III. c. 52, s. 7, is subject to legacy duty. It is, moreover, said to require three conditions :—(1) the gift must be with a view to the donor's death ; (2) it must be conditioned to take effect only upon the death of the donor by his existing disorder ; (3) there must be a delivery of the subject of the donation.—*Bunyon's Law of Life Ins.*

A *donatio mortis causæ* cannot be by deed without delivery ; but the delivery of the deed by which the subject of gift is secured has been held sufficient. Thus a pol. of ins. may be the subject of such a gift, and the executor becomes a trustee for the donee. This was so held in *Witt v. Amis*, 1861.

DONATIONS TO FIRE-ENGINE COMPANIES.—Laying a tax on the provident members of society to secure the improvident from loss.—*Griswold*. The subject will be fully considered under FIRE BRIGADES.

DONCASTER, G., was for several years Superintendent of Agencies of *British Protector*.

DONEE.—One to whom a gift is made.

DONNELLY, WILLIAM, Reg.-Gen. for Ireland since the Gen. Regis. Act for that country came into force in 1863. Mr. Donnelly was Chief Commissioner of the Irish Census of 1851, the voluminous but valuable official Reports on which have become standard works of reference. He has also been a Commissioner of each of the subsequent Censuses of Ireland.

DONOR.—A giver; a bestower; one who gives lands to another in tail, etc.

DOORS.—Iron shutters and doors, covering inside openings, should be of strong boiler-iron, well braced upon bar-iron frames; should lap over the edges on the frame, and each other when double, at least two inches; should be hung upon strong bar-iron frames, securely anchored into stone set in the brickwork for this especial purpose, to prevent working loose, as might be the case in brick alone; and not in contact with woodwork at any point; should be securely fastened, and one window on each floor so arranged as to be opened from the outside, as it frequently becomes very important that immediate access should be had to the interior of a building, when the key to the doors may not be at hand.

For *inside openings, hoistways*, etc., when not larger than the ordinary door, the coverings should be of not less than one-quarter boiler-iron, and, if larger, of proportionally increased thickness, made to correspond in other respects with outside doors. When such doors may be *double*, one on each side of the opening, the frames should be bolted together through the intervening wall, so that neither can fall and leave the other unprotected.—*Griswold's Fire Underwriter's Text-Book*.

Capt. Shaw (*Fire Surveys*, 1872) suggests that where iron doors cannot be provided, double oak doors will afford much protection: as on emergency the intervening space may be filled with wet blankets, etc. But he suggests, what indeed is very obvious, that where fireproof doors are placed, the intervening floors should be cut away, and separated by plaster or other unflammable material.

Iron doors hung on wooden frames are almost useless; doors covered with zinc afford no protection—the zinc melts like lead before great heat. In certain cases doors covered with tin plates have resisted fire for a considerable period. [FIRE-PROOF BUILDINGS.]

DORCHESTER, ENG.—On 6th Aug. 1613, this town was nearly destroyed by fire; 300 houses and two churches were burned; damage estimated at over £200,000. In 1662 a second conflagration occurred, which inflicted serious damage. Details not known.

DOUBLE HAND-IN-HAND.—This was the orig. name of the *Union Ins. Co.*, founded in 1714: from the design upon its "Fire Mark." It was very soon changed for the present title. [UNION INS. CO.]

DOUBLE INSURANCE.—This is where a person being fully insured by one pol. effects another on the same subject with some other insurer or insurers. This is sometimes done intentionally in cases of Marine Ins., but more frequently by accident, as where several persons are interested, each may insure. It is quite lawful, and the insured may in the event of a loss recover against either set of underwriters. But as marine ins. is held to be a contract of indemnity only, the law will not allow him to recover beyond the amount of his loss; and thus if he obtains payment from one set of underwriters, *they* may recover contribution from the underwriters of the other pol.—*Park*.

Cases of Double Ins. also arise under F. Ins. contracts; as also in *Glass Ins.*, *Cattle Ins.*, *Steam Boiler Ins.*, *Hail Ins.*, and other branches of the bus. based upon the principle of indemnity. In all such cases the same principle applies, unless it shall be modified either by custom or by the conditions of the specific contract entered upon.

In *Life Ins.*, *Accident Ins.*, and *Health Ins.*, the practice is different; being modified by the principle that the value of life and limb cannot be estimated; and therefore cannot be circumscribed. This not unfrequently leads to or increases the temptation to fraud. Some of the Accident Ins. Cos. make it a condition of ins. that the claimant shall disclose all his insurances before he shall be entitled to payment.

Marine Ins.—The practice has become the subject of specific regulation in various countries.

The Ins. Ordin. of *Middleburgh*, 1600, contains a curious provision regarding Double Ins.:

In case any person make assu. upon his goods, ship, or merchandize in *different places*, without giving due notice, but knowingly and wittingly concealing the same, in order by that means to receive double, treble, or more, the cost and value of the ship, goods, or merchandize, contrary to what is permitted by this Ordinance, or make more assu. upon his ship, goods, or merchandize, than is allowed by the same, then he shall not be entitled to demand or pretend to the payment of such assu., from the assurers or any of them; but the same shall be confiscated, *one-third part to the benefit of the poor*, and the other two-thirds to the officer and informer respectively, with arbitrary correction [punishment], reserving, however, one-half p.c., which the assurer is to deduct out of it according to ancient custom, if he was ignorant of it [the double ins.], otherwise not.

The Ins. Ordin. of *France*, 1681, says:

If there should be several pol. made without a fraudulent intention, and the *first* pol. amount to the value of the effects laden, *it shall alone hold good*: the other insurers shall withdraw their assu. and return the prem., keeping half p.c. In case the first pol. should not contain the amount of the effects

laden, the insurers on the *second* shall be answerable for the surplus : if there be effects laden to the amount of *all* the ins. made, then, in case of the loss of a part, it shall be paid by all the insurers, so much p.c. on what they have underwrote.

The Ins. Ordin. of *Bilboa*, 1737, is still more explicit :

A double ins. upon one and the same thing may not be made in this town, nor out of it, under penalty of its being void ; but if it shall happen that two or more concerned in the same thing, without having knowledge or notice, the one of the other, every one for himself, makes the said ins., *it shall remain valid to him that can prove making it first* : in which case to annul the second, or last (as ought to be done), it is ordained that the assured do punctually repair to make it known to the assurer, with a legal instrument that certifies it, in the term of 30 days, reckoned from the date of the last pol., provided the assured has not before this necessary diligence, any advice of the ship's destiny ; and that in this manner such second or later ins. remain null, with their pol. ; the assurer returning to the assured the prem. that he shall have received from him by reason of the said ignorance of the first ins., with the abatement and discount of half p.c., which he may retain and keep, for having signed the pol. But if the ship shall happily have arrived before the said advice, it shall be judged that the last assurer or assurers have gained their prem. and ought not to restore them : and on the contrary, if the ship and cargo, and what of them shall be ins., shall be totally or in part lost, and this appears to the last insurers before they were acquainted with the said first and preferred ins., in this case both the first and last shall *proportionally* make good all the damage or loss of what is ins. ; and if some of them shall at that time be found to have failed, the rest shall supply what shall be wanting, in proportion to what they have insured, having their redress for what is so supplied against the said bankrupts.

The *Amsterdam* Ins. Ordin. of 1744 says (art. xxiv.) :

But if more than one pol. is used and underwrote upon one and the same parcel of goods and interest, then the first pol. in date, without regarding the following pol., shall take place for the amount of the sum insured, for the value of the goods and effects ; and the reduction shall fall on the pol. of later date : as well in case of returns as of average and losses.

The Ins. Ordin. of *Stockholm*, 1750, says :

If it happen that the *same* ship or goods are ins. at *two* or more places, and it can be proved to have been without any fraud in the insured, and that it proceeded only from his not having timely notice of the ins. taken up by his agent for another place, *that pol. alone shall stand good which is of the oldest date and was first signed*, whether the prem. contracted for be higher or lower than that of the last pol. : withal the insured may demand back the prem. paid on account of the last pol., allowing a deduction of one-half p.c. : but in case what is specified in the oldest pol. does not amount to the full value of the goods on which such ins. was made, or so much as by this Ordin. is allowed to be ins. on them, the last pol. shall then be in force, but only for so much as is not specified in the first, and for the remaining value the ins. prem. shall be returned upon demand, with a deduction of one-half p.c.

While the practice of the various countries differs considerably, the principle is the same. The doctrine estab. by these Ordin. and others is upheld by Stypmannus, Kuricke, Loccenius, and Stracca ; and indeed by all other continental writers on the Civil Law, as well as by writers on Marine Ins. The practice in England again varies from any of the preceding. We find no decisions on the point prior to Lord Mansfield's time. We therefore fall back upon that great lawyer.

Lord Mansfield laid it down in the case of *Godin v. Lond. Assu. Corp.*, tried in 1758, that : Two persons may insure different interests, each to the whole value : as the master for wages : the owner for freight, etc. ; but a double ins. is where the same man is to receive the same sums instead of one, or the same sum *twice* over, for the same loss, by reason of his having made *two* ins. upon the *same* goods, or the same ship. This, however, does not reach the case before us.

In 1763, in *Newby v. Reed*, it was ruled by Lord Mansfield, that upon a double ins., though the ins. is not entitled to two satisfactions, yet upon the first action he may recover the whole sum insured, and may leave the defendant therein to recover a rateable satisfaction. This was thenceforth agreed to be the course of practice. The principle here estab. is shown more fully in the case of the two following actions, heard before the same Judge.

In *Rogers v. Davis*, 1777, there was a valued pol. "on ship, freight, and goods, as interest might appear, from Newfoundland to Dominica, and from thence to the port of discharge in the West Indies." The ship sailed from St. John's on the 17th December, 1775, and the plaintiff declared as for a total loss. The defendant, who had underwritten for £300, paid into Court only £124, on a supposition that the underwriters on a former pol. should bear a share of the loss. The plaintiff had originally insured at Liverpool, on a voyage "from Newfoundland to Barbadoes and the Leeward Islands," with an exception of American captures ; but afterwards, for the purpose of securing himself against capture, and having altered the course of his voyage, made the present ins. He now insisted that he was entitled to the full amount of his ins. against the defendant, and not to any part from the Liverpool underwriters, because the voyage now insured was different from that insured at Liverpool. There was a verdict for the plaintiff for his full demand, leaving the defendant at liberty to bring an action against the Liverpool underwriters if he thought fit.

Accordingly, in *Davis v. Gildart*, also 1777, the defendant in the last action brought an action against an underwriter upon one of the Liverpool pol., to recover a contribution for the loss which he had been obliged to pay. It was admitted that on the Lond. pol. (which was the subject of the former action) £2200 was insured ; that on the two Liverpool pol. £1700 was ins. ; that the merchant was interested to the amount of £500 on the ship, £300 on the freight, and £1400 on the cargo ; that the plaintiff had paid £200 loss, and £47 for the costs. The whole interest was £2200, and the whole ins. was £3900. It was insisted for the defendant that the ins. in Lond. was an illegal

re-ins. ; and therefore the plaintiff might have made a good defence in an action brought against him ; and if so, he could not now recover over, against the defendant, in the present action. Lord Mansfield said :

The question seems to be, whether the insured have not two securities for the loss that has happened. If so, can there be a doubt that he may bring his action against either ? It is like the case of two sureties ; where, if all the money be recovered against one of them, he may recover a proportion from the other. Then this would bring it to the question whether the second ins. be void as a re-ins. But a re-ins. is a contract made by the insurer to secure himself ; and this is only a double ins.

Emerigon, in his famous *Treatise on Insurances*, pub. 1783, seems, strangely enough, to have regarded double ins., as such, as simply unlawful. He says :

Since it is allowed to have ins. only upon what is put at risk, it follows that it is prohibited to cause to be insured by a second insurer what has already been insured by the first. It is plain, however, that this prohibition does not extend to a plurality of pol. when their total amount does not exceed the value of the subject insured. An ins. is not the less one for being contained in different writings. It is not multiplying ins. to have the risk which one has taken re-insured, or to have insured the solvency of one's own insurers. [INSURING THE INSURERS.]

Marshall, in his *Marine Ins.*, etc., 1802, says :

Double ins. is where the insured makes two ins. on the same risk, and the same interest. It differs from re-insurance in this, that it is made by the insured, with a view of receiving a double satisfaction in case of loss ; whereas a re-insurance is made by a former insurer, his executors or assigns, to protect himself and his estate from a risk to which they were liable by the first ins. A re-insurance, except in the cases permitted by the stat. 19 Geo. II. c. 37, s. 4, is absolutely void ; but a double ins., though it is made with a view to a double satisfaction in case of loss, and is therefore in nature of a wager, is not void by the law of Eng. The two pol. are considered as making but one ins. They are good to the extent of the value of the effects put in risk ; but the insured shall not be permitted to recover a double satisfaction.

In the case of OVER INSURANCE we shall see that the same principle does not apply. In *Bousfield v. Barnes*, 1815, it was held by Lord Ellenborough, that in an action on a "valued pol.," it is no defence to prove that the insured has received the amount of the valuation in the particular pol. in question from the underwriters on another pol., if the subject-matter ins. be proved to be of a value equal to the sum received, and the sum sought to be recovered.

Arnould puts the rules now in force regarding double ins. in the U. K., and the return of prem. consequent thereon, in the following terse form [3rd ed. 1866, p. 1016] :

Where, after effecting one ins. by open pol. on his property, the merchant, ignorant of its real value, and wishing to be fully protected, effects further ins. by other similar pol., with a different set of underwriters, the law of this country is, that he may recover to the extent of the insurable value of the property at risk : putting whichever pol. he pleases in suit, and leaving the underwriters on the different pol. to contribute rateably amongst themselves to the loss. *In case of double ins., he is entitled to a rateable return of prem. proportioned to the amount by which the aggregate sum insured in all the pol. exceeds the insurable value of the property at risk.* [OVER INS.] [VALUED POL.]

Fire Ins.—The Eng. F. pol. of the last century contained among their conditions such a clause as the following :

To prevent fraud, persons ins. by this office shall receive no benefit from their pol. if the same houses or goods, etc., are ins. in any other office, unless such ins. be first specified and allowed by an indorsement on the back of the pol. ; in which case this office will pay their [its] rateable proportion on any loss or damage. [Sum pol. dated 1798.]

Mr. Bunyon, in his *Law of Fire Ins.*, says regarding such a clause : "This appears a provision of a somewhat arbitrary nature, since it is difficult to see with what justice the insurers could dispute a claim upon the ground of a pol. having been effected, which, if valid, would only operate to diminish their risk, or could endeavour to throw the whole responsibility on another co. The author is not aware of any action having ever been defended upon such a plea as this condition would furnish." [See *Hygum v. Aetna Ins. Co.*, 1860, quoted in this art.]

The preceding clause has given way to the following, found in more modern pol. :

If at the time of loss or damage happening to any property ins. by this pol., there be any other ins. or insurances, whether effected by the ins., or by any other person, covering the same property, this Co. shall not be liable to pay or contribute, in respect of such loss or damage, more than such proportion as its liability, separately ascertained, shall bear to the aggregate liability upon all the insurances covering such property, separately ascertained in like manner, according to their respective terms and conditions : irrespective in each case of this or any similar condition as to contribution. [L. L. and G. pol. 1871.]

This is usually accompanied by a further condition as follows :

In all cases where any other subsisting ins. or insurances, whether effected by the insured or any other person, on any property hereby insured, either exclusively or together with any other property in and subject to the same risk only, shall be subject to average, the ins. on such property under this pol. shall be subject to average in like manner ; and in ascertaining the separate liability of this Co., as provided in the last preceding condition, this condition as to average shall be taken into account. [L. L. and G. 1871.]

It will be seen that these clauses apply not only to insurances effected by the particular pol.-holder, but to those effected by any other person on the same property : for if it were not so, as Mr. Bunyon puts it in relation to another form of clause, which he furnishes, "it might happen in practice that the value of the property might be recovered twice over, as when separate insurances were effected by vendor and purchaser, landlord and tenant, mortgagor and mortgagee, or tenant for life and remainder-man, without the priority of each other."

The intention of the condition is to throw upon each co. its proper share of the loss ; but the cos. must proceed with caution : too much precipitation on the part of any one co.

will be at its own peril. This was shown in the case of *Lucas v. Jefferson Ins. Co.*, before the Supreme Court of N. Y. in 1827, where it was held, that in a case of double ins., if one pol. provides that the insured, in case of loss, shall not be entitled to demand any greater portion of the loss sustained than the amount insured therein bears to the whole amount insured on the property, if the insurer nevertheless pays the full amount of a loss, he is precluded from resorting to other insurers for contribution. It seems that in such case the consent of the other co. or cos. is necessary to such a settlement. "The liability *in solido* (as Mr. Bunyon puts it), which would be the foundation of the right of contribution, would not exist" without such consent.

In the case *Millandon v. Western Marine and F. Ins. Co.*, before the Superior Court of Louisiana, 1835, the facts were these: A F. pol. was taken out on certain property; and a second pol. is taken out in another office upon the same property—a "valued pol." which is indorsed on the first pol.:—*Held*, 1. This does not convert the first pol. into a valued one. 2. If a subsequent pol. contain no provision in respect of prior insurances, the amount of insurable interest in it will be the same as for the first pol.; for the insured may insure again and again the same property, but can recover but one indemnity, and this he may recover of the first or subsequent underwriters. Those who pay the loss may demand a proportional contribution from the other underwriters, who are in this respect sureties for each other. 3. In ins. on merchandize, furniture, or buildings, against fire, the rules as to valuation are the same as in relation to a ship or cargo. If the pol. is open in its form, the value of the interest must be proved.

In this country it is very usual among F. offices for the office having the largest amount at risk to undertake the settlement of a loss, and sometimes even pay it when ascertained. In this case, however, the assent would be assumed from the acts of the parties, and upon evidence of custom.

Questions regarding the various pol. affecting a particular risk being concurrent, or otherwise, will be investigated by the adjusters of the loss. Where they are concurrent, the ascertainment of the loss to each is a simple matter of proportion. Where some are *specific*, and some *average*, the matter becomes more complex: unless indeed the several pol. contain a clause similar to the second we have furnished as from the conditions of the *Liverpool, Lond., and Globe*: where all are to be reduced to *average*. [AVERAGE POL., *Fire*.] [SPECIFIC POL.]

In the case of *Cromie v. Kentucky and Lexington Mut. Ins. Co.*, 1854, several pol. of ins. had been taken out on one building—additions were then made to the building, and ins. taken on new and old. In an action upon a pol. covering the old portions,—*held*, that the amount of loss upon the new portion should be first deducted from the pol. covering both, before their aggregate amount is brought into calculation, by which the proportionate liability of each is to be ascertained. [15 B. Monr. Ky. 432.]

In *Hygum v. Aetna Ins. Co.*, 1860, there was a policy in the *Aetna* for 4000 dollars on stock of drugs, medicines, etc., and policy of 2000 dollars in the *Dubuque Mut.* on same stock. One condition of the *Aetna* policy provided "that in case of any other insurance upon the property hereby ins., the assured shall not in case of loss or damage be entitled to demand or recover of this Co. any greater portion of the loss or damages sustained than the amount hereby insured shall bear to the whole amount insured on said property:"—*Held*, that the *Dubuque Mut.* pol. being void by reason of the subsequent ins. in the *Aetna* without notice to or consent of *Dubuque Mut.*, the *Aetna* was liable for the whole loss. [11 Iowa 21.]

In *Richmondville Union Seminary v. Hamilton Mut. Ins. Co.*, 1860, a pol. was taken for 3000 dol., "add. to 9000 dol. ins. in other offices, and 8000 dol. to be insured in other offices." At the time of the fire there was only 11,000 dol. insured beyond the 3000 dol. The pol. contained the usual stipulation that, in case of loss, it would share the same in proportion to its share of the whole ins. It was claimed by the defendant Co. that there was a contract or warranty that there should be 17,000 dol. of other ins., at least so far as to furnish a basis of calculation for the amount recoverable; but the Court held that such was not the true construction, and that the Co. must bear the loss in proportion to its share of the whole ins. actually effected. [14 Gray, Mass. 459.]

It has not been the custom in Great Brit. to issue "valued" F. pol.

Some other points in the law in the U.S. regarding double ins. under fire pol. are thus stated by Mr. Flanders, in his excellent treatise, *The Law of Fire Ins.*:

As to constitute a case of double ins., the risks must be on the same property, and the liability must be precisely the same, it follows that if the insured takes pol. upon different parts of the same building, or of the merchandize within the building, or upon different interests in both, it is not a case of double ins. For example, where ins. is effected on a stock of goods in a building described in a pol., and an ins. is also effected in another co. upon a stock of merchandize "in the chambers" of the same building, parol proof is admissible, in a suit on the last pol., to show that the goods in the chambers were not intended to be included in the first pol., and hence that it is not a case of double ins.; and that the insurers on the second pol. are liable for the whole loss, and cannot avail themselves of the clause restricting their liability to a rateable share of the amount insured. Nor, it seems, is it a case of double ins., where the pol. in one co. covers the building, and a subsequent pol. in another co. covers the building and machinery, tools and stock.

Cases are cited in support of these several positions.

The question of "returned prems." does not arise in fire ins.

It is of the greatest importance that the same principle should be made to govern the same class of cases in each country; and we think the principle here laid down in relation to marine ins. in this country may be followed in regard to other similar branches of ins. bus. here. Where specific conditions to the contrary exist, the ruling must follow such conditions.

DOUBLEDAY, THOMAS, pub. in 1841, *The True Law of Pop. shown to be connected with the Food of the People*. 2nd ed. 1847. This is the extension of "A Letter to the Right Hon. Lord Brougham," which appeared in *Blackwood's Mag.* for March, 1837. [FOOD.] [POPULATION.]

DOUBLY HAZARDOUS RISKS [*Fire Ins.*].—Under the arbitrary system of classifying fire risks, which prevailed in Gt. Brit. until quite a recent date, all thatched buildings (i.e. buildings roofed with straw, reeds, rushes, or grass) with chimneys, or adjoining buildings with chimneys, irrespective of their contents, were regarded as "doubly hazardous" risks; as also all buildings with hazardous goods deposited therein, or hazardous trades carried on therein; as also mathematical or scientific instruments, jewels, etc.

It is now the practice of fire offices in Gt. Brit. to send their surveyors to survey and report upon all houses and buildings exposed to more than ordinary hazard, by which means all the circumstances of each individual case are considered, and a rate of prem. assessed with due regard thereto. This method has many advantages over the former method. The suggestions of an experienced surveyor may do much in regard to the prevention of fires. [FIRE INS. RISKS, CLASSIFICATION OF.]

DOUBTFUL LIFE OR DOUBTFUL LIVES.—Those who are familiar with L. Ins. phraseology, very well understand what is implied by the term "doubtful life" or "doubtful lives." To those who are not thus familiar, the following explanation, by Dr. A. P. Stewart, M.D., given in his "Obs. on the Characteristics of Assurable and Non-Assurable Lives," published by way of Supp. to Mr. M. A. Black's pamph. *On the Assu. of Diseased and Doubtful Lives*, etc., will be acceptable:

What is a doubtful life? Let us take an extreme case. A man between 25 and 30 years of age presents himself for examination. He exhibits all the characteristics we have enumerated above [GOOD LIFE] of perfect health in its highest development. His habits are regular, his occupation and residence highly conducive to health, and every organ is in perfect working order. Here, if present condition were a guarantee of continued immunity from any of "the ill's flesh is heir to," is a life which no office would for a moment hesitate to accept. But there are various circumstances which may cast a shade of doubt more or less deep even on a life at first sight so eligible. We must inquire—what is his family hist.? [FAMILY HISTORY.] If his parents, though each of a long lived-race, have died early, already a suspicion of some family taint dawns upon one. If in add. we find that one, two, three, the majority perhaps of his brothers and sisters have died, suspicion strengthens into certainty. If further it appears that these died, not in infancy, but at various ages between 15 and 30, we may almost conclude, without further inquiry, that the disease which has wrought such havoc is tubercular consumption. . . . When two, three, or more cases have ended fatally in a family of 7, 8, or 10, the survivors not having attained the age of 35, the prob. is that in some of these the seeds of the disease exist, and may be quickened into activity by apparently trifling exciting causes. The same remarks apply to other diseases reputed "hereditary," such as scrofula, gout, and rheumatism, cancer, insanity and diseases of the brain and nervous system—with this important difference, however, that whereas tubercular disease occurs comparatively seldom after 35, advancing years confer no immunity from most of the other diseases named; on the contrary, it is after 40 that gout, cancer, and paralysis, most commonly occur.

Now here is an extensive group of circumstances, which, without any present indication of disease in the life under examination, at once places it in the category of *doubtful*, or *suspected* lives; and the presumption against its eligibility varies, according to the prevalence of the complaint among blood relations, from next to nothing to an almost absolute bar. The extra risk will be covered in one case by the add. of 2 or 3 years; in another, the add. of 20 or 30 years will hardly tempt a prudent office to incur it. We need scarcely add that the frequent occurrence of slight colds in a member of a consumptive family; of pains in the limbs and joints in a person with a gouty or rheumatic predisposition; of great and sudden fluctuations of spirits in one several of whose near relations have been afflicted with insanity; or of headaches, with full pulse and flushed countenance, in one amongst whose relations several apoplectic and paralytic seizures have occurred, will naturally decide against the proposer any leaning the medical examiner might previously have had in his favour. [DISEASED LIVES, INS. OF.] [REJECTED LIVES.]

DOUBTFUL SEX.—For remarkable account of INS. WAGERS concerning, see EON, CHEVALIER D'.

DOUGLAS, W., for many years Sec. of Liverpool branch of *North Brit. and M.*

DOUKER, or **DOUKERS**.—Welwood, in his *Sea Lawes*, 1636, in his chap. "Of things found upon the sea, or within the floud-marke," speaks of "Doukers" in the light of salvage men apparently. Thus "if a Douker finde drowned goods upon eight cubits deepe, he gaines the third part; and if on fifteen cubits, then he obtains the halfe; but upon one cubite onely the tenth part." We do not find the word in any Dict. ancient or modern. [DIVERS.]

DOVE, JOHN MATTHEW [son of the late P. M. Dove], Assist. Sec. of *Liverpool, London, and Globe* since 1873. Was trained to the bus. of ins. under his father in the *Royal*. He bears a name that will be long honourably remembered in the ins. world.

DOVE, PERCY MATTHEW, late Man. of *Royal Ins. Co.*—Mr. Dove entered the *Royal Exchange* about 1820 as a junior, and worked his way through the different departments until he became Assistant Act. under the late Mr. B. P. Bidder.

In 1845 steps were being taken to found the *Royal* in Liverpool. A deputation of directors came to Lond. to select a manager. Mr. Dove was introduced to them, and was at once engaged. The remainder of his ins. biography may be mainly traced in the hist. of

that Co. Never was devotion more sincere, or crowned with greater success. He made himself familiar with the practice of fire ins. in most of the principal towns and cities of Europe; and crossed the Atlantic on several occasions, and built up prosperous agencies alike in Canada and the U.S.

His valuation of the life branch of the Co.'s bus., illustrated by T. and diagrams, pub. 1860, demonstrated the interest which he took in that branch of its operations. In 1865 a further report was pub., prepared in the same painstaking manner.

He gave evidence before the Select Parl. Committee on Fire Protection, which sat in 1867; and certain portions of that evidence we deem worthy of being reproduced.

He presented statistics of the fire claims upon the *Royal* for 1865-6. The results, in short, were that of the claims during those 2 years about 57 p.c. arose from ascertained and satisfactory causes; about 38 p.c. from unknown or unsatisfactory causes; about 4 p.c. from suspicious, and about $\frac{1}{4}$ p.c. from incendiarism. The pecuniary results come out still more strikingly:

2452. You have reason to believe that a great part of those were suspicious fires? Very suspicious.

2462. Are there any means that you could suggest to us for preventing the extraordinary increase of fires in the country? Yes. I have no doubt in my own mind with regard to the great necessity of estab. a tribunal of some kind for inquiring into the causes of fires.

2463. Do you think that such a tribunal should be kept up by the ins. cos., or do you mean that it should be a public tribunal? It is more a question for the public because the ins. cos. can provide for any contingency by an increase in the rate of prem., whereas the public can only look to an Act of the Legislature for the reduction of such a growing crime as incendiarism.

2464. Of course the increase of rate is really a public question, inasmuch as it would be really the increase of a tax on prudence? Yes.

2465. Are you aware of a public investigation of fires having taken place in other countries? Yes. The co. whom I represent has estab. agencies in various parts of the Continent and America. In all those places the legis. more or less takes cognizance of fires quite irrespective of the ins. cos. . . .

2469. Can you give the Committee some of the causes of the increase of fires of late years? I think that a great many of them are mysterious; but there are some reasons which might be adduced. I think that there is a community or fraternity of criminals consequent upon the impunity with which the crime of arson is committed. . . . It affords to the dishonest the easiest escape from pecuniary difficulties, and the readiest method of getting money by fraudulent insurances. The criminal knows that the present provisions of the law are insufficient. . . .

2480. Do you not think if we had a judicial investigation into the cause of fires, it would be the means of discovering, not only the crime of incendiarism, but other crimes which incendiarism conceals? It would be most valuable in many respects, because it would discover cases of spontaneous combustion, and evidence would be given by chemists with regard to the affinities of different articles.

2530. Do you think that any increase of fires is to be attributed to the recklessness of the ins. cos. in taking bad risks? To a certain extent I think so. The last 15 or 20 years have seen the rise, fall, and ruin of a large number of fire ins. cos. New cos. came into bus. with small experience, and created an unwholesome competition; therefore their capitals—small as they were—have had a tendency to create a worse state of things than before. . . .

2533. Therefore you think that part of the mischief is to be attributed to the carelessness in taking risks? I think, taking everything into consideration, that is a very small element in the whole of the causes. Within the last two years so satisfied have I been of the necessity of investigating the character of the persons proposing for ins. that I do not allow an ins. to be passed in my co., coming even from remote agents, without their replying to a series of questions which are put on the back of the order, such as: "Are you personally acquainted with the proposer; if not, by whom has he been introduced to you? Have you satisfied yourself that he has always borne a good character? Has he ever had a fire in any premises of his? Is the property now proposed for ins. of greater value than the sum for which it is to be insured?" Only this morning I have received statistics from my office stating that some hundreds of ins. have been declined upon those grounds during the present year, and during the same time we have clear statistics showing that we have thus escaped losses to the extent of £23,000.

Further portions of Mr. Dove's evidence will be found under *Royal Ins. Co.*, and other appropriate places in this work.

Mr. Dove died in 1868, after a short illness, aged 63. It was another instance of his devotion to the Co., that when on his death-bed, and within 48 hours of his death, he had an interview with the deputy chairman and then deputy man. of the Co., and imparted to them his views on the future management of the Co. In the rep. of the directors, presented to the ann. gen. meeting in 1869, there occurred the following paragraph:

Before entering upon a report of the results of the bus. for the year 1868, your directors have the melancholy duty of recording the death of Mr. Percy M. Dove, who occupied the position of Man. and Act. to the Co. from its estab. in 1845. Mr. Dove performed the duties devolving upon him with distinguished ability; and much of the marked success which the Co. has achieved may be attributed to the energy and enterprise he displayed in its service. Mr. John H. McLaren, formerly Sub-Man. of the Co., has been appointed Man.

DOWDESWELL, GEORGE M., pub. in 1846, *Law of Life and Fire Ins.*; with an appendix of comparative tables of Life Ins. This work was written in view of being pub. by the So. for the Diffusion of Useful Knowledge. "This (says a writer in the *Law Mag.*) is a text-book of the right sort. Instead of a crude string of marginal notes, not very honestly culled from the digest, and very clumsily coupled with links from the author, Mr. Dowdeswell has written a treatise on the subject he professes to explain."

DOWER.—The right which a wife—not being an alien, unless she be naturalized and made a denizen—has at Common Law in the *third part* of the lands and tenements of which her husband dies possessed in fee-simple, fee-tail-general, or as heir in special tail; which she holds from and after his decease in severalty by metes and bounds for her life, whether she have issue by her husband or not; and of what age soever she may be at her husband's demise, provided she be past the age of 9 years. By the Dower Act, 3 & 4 Wm. IV. c. 105 (1833), the husband can by his will or otherwise effectually bar dower to his wife.

DOWESS.—A widow entitled to dower.

DOWLING, CHARLES HUTTON, Civil Engineer, pub. 1864, *A Series of Metric Tables, in which the British Standard Measures and Weights are compared with those of the Metric System at present in use on the Continent*. A work of great utility and good reputation.

DOWNER, C. J., was Sec. of *Economic L.* for some years down to 1848.

DOWNES, JOHN JAMES, F.R.A.S., the late, was for upwards of 30 years the Act. of *Economic Life*. In 1862 he retired from the active duties of the position, but remained Consulting Act. He was also for some years Consulting Act. of *Norwich Reversionary*.

Mr. Downes gave evidence before the Select Parl. Committee on Ins. Asso., 1853.

In 1857 he pub. a pamph. on the *Experience of Mort.* [of *Economic Life*] from 1st June, 1823, to 31st Dec. 1855, an extract from which is given in vol. vii. of *Assu. Mag.* [ECONOMIC LIFE, MORT. EXPERIENCE OF.]

In 1862 he prepared, for private circulation only, *An Account of the Processes employed in getting out the Mort. Experience of the Economic Life Assu. So.*

Mr. Downes died 12 Nov. 1867.

DOWNES, OLINTHUS GREGORY, F.R.A.S., son of the preceding, was Act. of *Economic Life* from 1862 to 1869, when he retired. In 1849 he pub.: *Translation of Quetelet's Letters on the Theory of Prob. as applied to the Moral and Political Sciences*. [PROBABILITY.]

DOWNES, WILLIAM SAMUEL [son of J. J. Downes], Act. of *Law L.* from 1846 to 1868, when he died, aged 49, having held his appointment for 22 years. He was also Sec. of the Co. from 1857 down to his death.

DOWRY, otherwise called *maritagium*, or marriage goods.—That which the wife brings the husband in marriage. This word should not be confounded with Dower.

DOYLE, JOHN HENRY, was Sec. of *Deposit and General* from 1854 down to the end of its career in 1856. Mr. Doyle found the fortunes of the Co. impaired past recovery when he took command.

DOYLE, LUKE, Dublin, Valuer and Adjuster of Losses for Ins. Cos.—He gave evidence before the Select Parl. Committee on Fire Protection in 1867. Fires had increased both in Dublin and the country of late years. A good many of the fires were malicious. "In 1864 I was employed in 44 settlements, and found 20 p.c. of them were dishonest and fraudulent fires. There were 30 p.c. of exorbitant claims made." "In 1865 I had 60 settlements. The per-centage of dishonest and fraudulent claims would be about 20; the per-centage of exorbitant claims was 40! In 1866 I had 110 settlements; 25 p.c. of these were fraudulent and dishonest fires; 50 p.c. were exorbitant claims. I had to pay 15 or 20 p.c. more than the value." "But if the co. suspect them to be dishonest or fraudulent, why do they not resist the payment?" "Because they would have no chance of getting out of it." "How is that?" "There is no chance of getting a jury to agree to convict in Dublin." "I would rather have a risky house than a risky man." "I think there should be an inquiry into all fires."

DRACH, S. M., F.R.A. and F.G.S., contributed to the *Journ. of Statistical So.* in 1856 a Letter, "On the relative vitality of the sexes," of the details of which we shall speak under FEMALE LIFE.

DRAINAGE OF LAND.—The drainage of certain portions of this kingdom, to which the health of our pop. owes so much, commenced at a very early period, as the remains of works in our Fen districts testify. The truly national works began in 1621, when Cornelius Vermuyden, the Dutch engineer, was invited to Eng. Amidst much opposition, he and his successors drained the districts termed the "Great Levels." During the present century much progress has been made not only in the drainage of land, but of our towns. Improved health goes hand in hand with efficient drainage. [PUBLIC HEALTH.]

DRAKE, THOMAS, was Sec. of *National Provincial Plate Glass* from 1855 to 1860.

DRAPERS FIRE INS. Co. was projected in Manchester in 1845, with a proposed cap. of £500,000; but it never got beyond prov. regis.

DRAWBACK.—A term used in commerce to signify the remitting or paying back upon the exportation of a commodity of the duties previously levied on it.

DRAWEE.—The person on whom a bill of exchange is drawn, who is called after acceptance the acceptor.

DRAWER.—The person making a bill of exchange and addressing it to the drawee. In the case of asso., cos. or corp., these can only become drawees or acceptors of bills of exchange within the powers of their deeds, charters, etc.; and where specific directions are given, these must be strictly adhered to.

DREADNOUGHT FIRE INS. Co.—Projected in 1853 by a person who had just previously projected the *Crescent*, and just afterwards projected the *Vesta*; none of which became estab. cos.

DRESDEN.—The capital of Saxony since 1549, and mentioned as a place of trade since the 13th century. Was burned in 1491; and ravaged by the plague in 1631-5. Pop. in 1871, 677,671—males, 329,461; females, 348,210. It appears to have no ins. hist.

DRESS.—The question of dress, i.e. clothing, has an important bearing upon health. We cannot enter upon the subject here. Those who desire to see the subject scientifically discussed may consult Dr. E. Smith on *Health and Disease*, 1861.

DRESS-MAKERS.—The health of the large class of persons following the occupation of

dress-makers has received much special attention of late years. The Reg.-Gen. of England, in his 5th Ann. Rep., pub. 1843, says:

It has been somewhere stated that the "mean age at death" of dress-makers is exceedingly low, and this has been adduced as a proof of the destructive effects of their employment. If the inquiries had been extended to boarding schools, or to the boys at Christ's Hospital, the "mean age at death" would have been found still lower. Mr. Grainger states, in his interesting rep., that the majority of dress-makers are between the ages of 16 and 26; and it is understood that if they die after they marry, they are not often designated by that title in the register. This source of error and the increase of pop. will be found to affect the estimate of the influence of other occupations. That the lives of dress-makers are very much shortened by the severe hardships and ignorant mistreatment to which they are exposed cannot be doubted; but false arguments injure instead of aiding their cause.

A Dress-making Co. was estab. in Lond. in 1865, in view of improving the condition of the workwomen. The subject will be discussed in some detail under OCCUPATIONS.

DREW, CORNELIUS, was "Clerk" [*i.e.* Sec.] of *Union F.*, for some years preceding and down to 1758.

DRIMMIE, DAVID, A.I.A., Dublin, Sec. for Ireland of *English and Scottish Law L.* since 1865. He had previously represented the same co. in the north-western districts of Ireland; acting for the fire depart. of *Liverpool, London, and Globe* at the same time. Mr. Drimmie now represents (in addition to the *English and Scottish Law*) the *Scottish Fire* and the *National Guarantee Assn.*, for each of which he is Sec. in Ireland. His efforts have met with an extended and encouraging measure of success.

DRINKING.—See *INTEMPERANCE*.

DROIT (from the French).—Right, justice, equity. There were many writs of *droit* or right used in our Law, but they were all abolished by 3 & 4 Wm. IV. c. 27 (1833), except the writ of *Dower*.

DROIT MARITIME DE L'EUROPE.—A work by Azuni, of which we have already spoken under the author's name.

DROITS OF ADMIRALTY.—The perquisites resulting chiefly from the seizure of the property of an enemy at the commencement of a war. These are attached to the office of Lord High Admiral, or to the Crown when that office is vacant. Prince George of Denmark, the husband of Queen Anne, resigned these rights to the Crown in consideration of a salary of £7000 p.a.; and we do not find that the office has since been held by any individual. The proceeds of the office were originally vested in the Sovereign, to enable him to provide for the expense of defending the realm and clearing the seas of pirates; and their value and importance will be at once perceived from the following details. In 1798, one ship which had been captured brought £55,000; in 1800 another brought £65,000. In 1804 one captured ship was worth £105,000; and in 1806 several taken at once netted £155,000. During the French war, also, the Dutch ships at one seizure brought £1,030,000; the Spanish ships £2,200,000. So large indeed were the sums realized in this fund, that the Crown in one year, after paying many hundreds of thousands to captors, and large sums to different branches of the royal family, gave a million out of the residue to the public service. By the Civil List introduced on the accession of Wm. IV., it was arranged that all the Droits of Admiralty which might accrue during his reign should be paid into the Exchequer for the benefit of the public service; and the Civil List of her present Majesty has made no alteration in that arrangement.—*Brandé's Dict.* Many questions affecting Marine Ins. arise out of these seizures. [LORD HIGH ADMIRAL.] [PRIZE MONEY.]

DROPSY (*aqua inter cutem*).—An effusion of watery fluid into the cellular tissue, or into any of the natural cavities of the body. There appears to be a good deal of diversity among medical men as to whether dropsy is an independent or primary disease, or whether it is not almost invariably a consequence or symptom of disease in some important organ of the body. To the circumstance of this diversity we assume must be attributed the varying per-centages yielded by returns obtained from different sources. The Reg.-Gen. classes dropsy as a distinct disease; and he must continue to do so until the medical men agree to look to primary causes in their returns of the "Causes of Death."

Dropsy appears to have progressively increased from 1629 down to 1750, subsequently to which date it appears to have somewhat abated, but manifests a tendency to increase again since 1810.—*Marshall*, 1832.

Out of 3799 deaths, the causes of which are reported by the *Scottish Widows' Fund, Standard*, and *S. Amicable*, only 36 are ascribed to dropsy, being less than 1 p.c.; in the *North British*, out of 1303 deaths, 353 p.c. are shown; in the *Equitable So. Lond.* 257 out of 4095, or 6.27 p.c.; while in the *Gotha So.* there were 232 such deaths out of 2466, being at the rate of 9.38 p.c. In E. and W., out of 177,858 deaths between 15 and 75 years of age, 7737 are put down to dropsy and ascites, being 4.35 p.c. It is obvious, as Dr. Fleming has remarked, "that such varied results must depend on the difference in the mode of making up the returns. . . . Dropsy being classed in the Reg.-Gen. Reports, and by some of the assu. sos., as a primary disease, instead of a consequence of the diseases of the liver, heart, or kidneys."

In the *Rep. of a Committee of the Statistical So. of Lond. appointed to collect and inquire into Vital Statistics upon the Sickness and Mort. among the European and Native Troops serving in the Madras Presidency, from the year 1793 to 1838*, and pub. in *Journ. of the Statistical So. of Lond.* 1840 [vol. iii.], we find that the invaliding and mort. from

"Dropsies" was very much less among the natives than among the Europeans—the invaliding being about one-half, and the mort. about four-fifths; while

Comparing the Madras Presidency with other countries, dropsies appear to be more prevalent, both among Europeans and natives, in the former than in any country, except Sierra Leone, Jamaica, and the Windward and Leeward Islands. They are more than three times more numerous among the European troops, and nearly three times more numerous among the native troops, than among the troops in the U.K.

Statistics in support of this view are furnished.

In 1839 there was read before the Statistical So. of Lond. a paper: *On the Sickness and Mort. among the Troops in the U.K. Abstract of the Statistical Rep. of Major Tulloch*, prepared by J. W. C. Lever, F.S.S., wherein it is stated that the admission into hospital during the 7 years subsequent to 1830 had been a little more than 1 p. 1000 of the strength, and the deaths about 1 in 4 of the admissions. Four-tenths p. 1000, or 4 in 10,000, was therefore assumed as the standard. The results in the different branches of the service had been as follows:

In the Dragoon Guards and Dragoons there died ann. 3 in 10,000.

Household Cavalry	3	"
West India Depôts	4	"
Civil Life	4	"
Foot Guards	5	"

In a paper by Major A. M. Tulloch, F.S.S., read before the Statistical So. in 1841, *Comparison of the Sickness, Mort., and Prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports* [*Statist. Journ.* iv. p. 1], we find the mort. from "Dropsies" in the navy just half of that in the army. The ann. proportions being to 1000 "mean strength" in navy, attacked 1; died '2. In the army, attacked 2; died '4. The following obs. thereon are offered:

The influence of this class of diseases is much more limited among sailors than soldiers in the Mediterranean, because endemic fevers, by which they are frequently induced, are less common on ship board; and because if a tendency to dropsy was observed, the patient would be immediately sent home. In this comparison, too, it must be kept in view, that more than half the dropsical affections among the troops occurred in the Ionian Islands, where, as already stated, a small proportion only of the navy is stationed.

In 1844 Dr. T. Graham Balfour, M.D., read before the Statistical So. a paper, *Comparison of the Sickness, Mort., and Prevailing Diseases among Seamen and Soldiers, as shown by the Naval and Military Statistical Reports* [*Statist. Journ.* viii. p. 77], wherein the proportions of invaliding and mort. from "Dropsies" differed from those of Major Tulloch. Out of 1000 of "mean strength" in the navy, there was ann. attacked 1; died '08. In the army, attacked 5; died '9: upon which it is remarked:

Dropsies, being commonly the sequel of fevers or hepatic disease, might naturally have been expected to be more prevalent among the military, who suffer to so much greater an extent from these than the sailor; while, moreover, the influence of the sea-breezes in restoring tone to the constitution of the latter, when convalescent from fever, must prove highly beneficial in warding off dropsical affections.

Dr. Ward, in *Medical Estimate of Life for L. Assu.*, 1857, says regarding dropsy:

As a general rule, an attack of dropsy renders a life ineligible. At all events, the occurrence of such, even some years previously, involves the necessity of very careful examination of the heart, and, also, through the urine, of the kidneys. After recent scarlatina it will be desirable to test the urine. Dropsy, it may be observed, occupies a prominent place as a cause of death in the Reg.-Gen. Reports.

Dr. Fleming, in his *Medical Statistics of Life Assu.* 1862, says:

In the Rep. of the Reg.-Gen., and till of late years in almost all records of causes of death, "dropsy" is found as an independent disease. The mort. from it has always amounted to fully more than a half of this class [*Diseases of Uncertain Seat*]; but being almost invariably a consequence or symptom of disease in some important organ of the body, and very rarely a primary or idiopathic disease, when it appears in a correct pathological nomenclature, the number of deaths ascribed to it ought to be very few. . . . Of late years I have no doubt "dropsy" has very rarely been returned to assu. offices as a cause of death, and that in future the cases ascribed to it will be much more numerically correct. The exclusion of dropsy, however, as an independent disease, will make a marked diminution in the rate of mort. from this class [*Diseases of Uncertain Seat*], and increase that from the diseases of the organs to which it will be correctly referred.

He then makes suggestions for allotting the deaths returned as from dropsy "to the organs from disease of which this symptom resulted."

In reviewing deaths from "Diseases of Heart and Blood Vessels," he observes:

I presume that one-third of the cases of dropsy are a consequence of disease of the heart, and I have appended a line to the T. showing the result with this proportion added. This, it will be seen, greatly modifies the discrepancy, and I have no doubt is the only correct explanation of it. When looked at in reference to the lives at risk, the just criterion, the approximation is as near as could be expected. In the *Gotha* (where even with a third of the cases of dropsy added, the mort. when measured by the deaths from all causes is very low) and the four Scottish assu. offices combined, the deaths from diseases of the heart and blood vessels amounted to 732 out of 8148: being 8'98 against 7'05 in the general pop.

An add. proof that I am correct in dealing with dropsy in the manner I have done is found in the circumstance of the rate of mort. in this class being very high in the *S. Amicable* above the age of 45, but more especially above 65. A large proportion of the cases of dropsy resulting from heart disease occur in advanced life; and the comparatively low mort. from these affections in Eng. and the *Gotha* above 45, shows that cases in which dropsy was a prominent symptom have been omitted from this class, and entered elsewhere.

Mr. Mann, in his *Contributions to the Medical Stat. of L. Assu.* 1865, says of dropsy:

In strict propriety this should generally be regarded as a symptom of some other disease, rather than

as a disease *per se*. But still there remain a few cases in which this form of disease is idiopathic, or constitutional, and not traceable to any local organic affection.

In our first 10 years [Mort. Experience of *Brit. Empire Mut.*] only 4 cases of dropsy have happened. Three of these were between 30 and 40 years of age; and 1 at 52: of this one we have hardly any information. He was a pilot by occupation, which involved exposure, anxiety, and perhaps some degree of intemperance. The second died in Australia. The third suffered from atrophy for years, which then terminated in ascites. The fourth is said to have suffered from anemia 8 weeks, and from congestion of the lungs and anasarca 2 weeks.

On the question of Medical Selection he says :

For the medical examiner, the most important inquiry connected with L. assu. concerning dropsy is, How far it may be considered as an hereditary disease? The answer to this must be derived from some knowledge, at least reasonable conjecture, of the nature of the disease of which dropsy was only a symptom. (a) When connected with heart disease, whether from rheumatic inflammation, affecting the interior of that organ,—or arising from fatty degeneration of the muscular substance,—in both instances I think it must be considered hereditary. As to the rheumatic diathesis there can be no doubt. As to the other form, I have so frequently known it affect different members of the same family, that I have as little doubt of its hereditary character. (b) Dropsy from *Morbus Brightii* (renal disease), notwithstanding the great attention which has been bestowed on the subject, both in Gt. Brit. and in France, is, as yet, imperfectly known in relation to this question. It must be reserved for further observation and experience. (c) Dropsy from cirrhosis of the liver, so frequently arising from the abuse of alcoholic drinks, is hardly to be returned in the class of hereditary diseases. On the other hand, when in connexion with malignant disease, it ought unquestionably to be so regarded. (d) Except malignant disease, there is no other disease of the lungs likely to cause dropsy but asthma. The œdematous condition of the ancles in the last stage of phthisis is hardly to be called dropsy. All these conditions, however, come under the category of hereditary diseases.

Allen, in his *Medical Examinations for Life Ins.*, 1869, gives us the view taken of dropsy in relation to life ins. in the U.S. :—

This is another symptom which may, or may not, be of importance. If present at the time of examination, no chance should be taken, but the party advised to postpone the application. It may have been a sequence of malarious disease—as often from ague; if there be not now material cachexia, it is no cause of rejection; but if hepatic or splenic parenchymatous disease remains, the applicant should be rejected or postponed until that is cured. It may have been left behind by scarlatina, or other zymotic disease. If it has not recurred, and the evidence of nephritic, cardiac, or other organic disease do not remain, it is not cause for rejection. It may have resulted from peritonitis, which has been entirely recovered from; if so, the party may be received. If from chronic peritonitis, it is cause for rejection. If it occurs from renal (Bright's) disease, from permanent hepatic, cardiac, or pulmonary organic affection, the party cannot be assured. The dropsy from drunkard's liver (*cirrhosis*) vitiates the application.

Aside from constitutional causes, the effusion into the pericardium is more grave in ins. prognosis than that into the pleural cavity. The latter than ascites, and ascites than that into the areolar tissue, œdema, anasarca, etc. But local anasarca always necessitates the greatest care, lest *albuminuria* be present or impending, or unless some permanent organic disease is its origin. Any constitutional cachexia, as syphilis, in connexion with the dropsical effusion, even though organic disease may not be discovered, precludes ins.

In 1869 Mr. Alfred Haviland pub. abstract of a paper, *On the Geographical Distribution of Heart Disease and Dropsy in E. and W.*; and in 1871, *The Geographical Distribution of Heart Disease and Dropsy in E. and W., illustrated with a large Coloured Map*. Of these pub. we shall speak in some detail under HEART DISEASE. [ASCITES.] [DISEASED LIVES, INS. OF, 1841.] [HEART DISEASE.] [RHEUMATISM.]

DROPSY, DEATHS FROM (Class, CONSTITUTIONAL; Order, *Diathetic*).—The deaths from this cause in E. and W. show a tendency to decrease—perhaps arising from modified classification, as referred to in preceding art. The following are the figures for 10 consecutive years: 1858, 8758; 1859, 8119; 1860, 7823; 1861, 7301; 1862, 7247; 1863, 7414; 1864, 7386; 1865, 7567; 1866, 7332; 1867, 7095; thus giving 454 deaths to each million of the pop. living in 1858; 360 in 1862, and 334 in 1867. Over a period of 15 years ending 1864, they were 456 p. million.

The deaths in 1867 were: males, 3014; females, 4081. Of the males, 427 died under 5; 99 between 5 and 10; 54 between 10 and 15; 43 between 15 and 20; 42 between 20 and 25; 114 between 25 and 35; 189 between 35 and 45; 299 between 45 and 55; 489 between 55 and 65; 716 between 65 and 75; 470 between 75 and 85; and 72 between 85 and 95. Of the females, 400 died under 5; 75 between 5 and 10; 57 between 10 and 15; 36 between 15 and 20; 84 between 20 and 25; 212 between 25 and 35; 305 between 35 and 45; 421 between 45 and 55; 732 between 55 and 65; 1008 between 65 and 75; 647 between 75 and 85; 98 between 85 and 95; and 5 over 95. [ASCITES.]

DROUGHTS, INFLUENCE ON HEALTH.—See DRY SEASONS.

DROWNING.—The state of asphyxia produced by the immersion of the body into water.

Drowning was held in great horror by some of the ancients, who conceived the soul to be fire, and that water would put it out. Perhaps for this reason it was constituted a mode of capital punishment. The Britons inflicted death by drowning in a quagmire about 450 B.C.—*Stow*. Sos. to aid in the recovery of drowning persons were first instituted in Holland in 1767. The motto of the Royal Humane So. in England is: *Lateat scintillula forsan*, "A small spark may perhaps lie hid,"—the aptness of which will be fully recognized by those who are at all conversant with the symptoms of drowning.

The subject of death by drowning has several important aspects in relation to Life and Accident Ins., and also in relation to Survivorship Ins.

Dr. James Bell Pettigrew, in his famous art., *On the Presumption of Survivorship*, in *Brit. and F. Medico-Chirurgical Review*, Jan. 1865, says regarding death by drowning:

This form of death is perhaps of all kinds of accidental death at once the most common and com-

plete. It arises under a variety of circumstances, and seems steadily to increase with civilization and the desire to extend our acquaintance of men and things. Dr. Desgranges has suggested that drowning may occur in two ways, viz. by nervous or syncopeal asphyxia, and asphyxia from cerebral congestion. As these several modes involve differences as regards time, and are characterized by diagnostic signs peculiar to each, it is of importance to allude to them in this place, as being likely to prove of some value in the determination of questions of survivorship. In drowning by nervous or syncopeal asphyxia the skin is characterized by great paleness, the result, as is thought, of spasm of the cutaneous vessels. Here, fear, the chill of the water, an attack of hysteria, or an accidental blow on the head in falling, suspends, as it were, the vital functions, and throws the nervous system into a state of inaction. Persons drowned under these circumstances generally survive much longer than those drowned by either of the other modes, as is proved by the following remarkable case:—

A young woman was condemned to be drowned for the crime of infanticide. On being immersed, she fainted; and although a quarter of an hour had elapsed from the time of her submersion, she nevertheless recovered on being taken out.

In the second kind of drowning, viz. *asphyxia by suffocation*, the individual perishing is not at once rendered insensible by shock or otherwise, but makes vain endeavours to respire, the consequence of which is that a quantity of water enters the trachea and mixes with the air in the bronchi to form the frothy mucus so commonly perceived in drowned persons—the lungs in such cases being totally unable to perform their functions. Here of course the probability of survivorship is not so great as in drowning by nervous or syncopeal asphyxia. In the third kind of drowning, viz. that by *asphyxia from cerebral congestion*, the persons most likely to suffer by it are those of an apoplectic habit, addicted to intemperance and the luxuries of the table. This species of drowning is characterized by lividity and swelling of the countenance. On these various modes of drowning, however, and their attendant signs, no very great reliance can be placed; for paleness of the skin may result from inanition, froth at the mouth from epilepsy, and swelling and lividity of the countenance from apoplexy, all of which might occur prior to immersion. The post-mortem appearances may perhaps be considered more satisfactory. On opening the heads of persons who have perished by syncopeal asphyxia, little or no engorgement of the blood-vessels, as a rule, is found; which is just the reverse of the appearance presented when death ensues from cerebral congestion.

The effect of all this appears to be, that it is extremely difficult to determine, in regard to a body taken from the water, whether the death is actually to be ascribed to suffocation from drowning, or whether it may not have been occasioned by a fit, as of apoplexy or epilepsy, before contact with the water at all.

This last consideration has been a material one in regard to several of the cases we now proceed to quote. The difficulty of *identification*, consequent upon the disfigurement arising from long immersion, gives rise to a set of considerations and difficulties of another class. So that, on the whole, death by drowning, unless actually witnessed by credible and disinterested persons, may be regarded as among the most difficult classes of cases with which ins. asso. have to deal.

In the cases of *Shilling v. Accidental Death Ins. Co.* 1857, the facts were very remarkable. Charlotte Shilling sued to recover the sum of £2000 under a pol. against death from accident, taken out in March, 1856, by a son upon his father, James Shilling, who was nearly 80 years of age, and very infirm. [Accident Cos. do not as a rule now issue pol. upon lives over 60.] Thomas Shilling, the son, also insured himself in the same Co. at the same time for £2000, also against death by accident. In the following month the son insured himself and his father for £1000 each in another accident ins. co. The father was in distressed circumstances, and had been receiving parish relief, which being discontinued, he was compelled to go and live with his son. Thomas Shilling, the son, had business to transact at a stone quarry near Malling, a short distance from Maidstone, where he resided. There were two ways to the quarry, the shorter one being by the banks of the Medway, “certainly rather a dangerous one to be taken with a vehicle and horse, on account of a steep bank leading to the river Medway being on one side, and the railway passing close to the other.” [We here quote the speech of the plaintiff’s counsel.] The son left the pony on the bank of the river with his father in the chaise. He saw a man connected with the quarry, who observed that a train was approaching, and that the pony was in a dangerous place. The son said he would move it, as the pony had been frightened by a train on a previous occasion. The next morning the father, the son, and the pony and chaise were found in the river at that spot, where the water was from 12 to 14 feet deep. The circumstances being remarkable, the Ins. Co. caused careful inquiries to be made. As the result they paid the £2000 on Thomas Shilling’s pol., but refused to pay upon the pol. on the life of the father—alleging want of interest, i.e. that the pol. was a “wager pol.,” and other legal grounds. The jury found for the plaintiff. A new trial was obtained—the Judge at the preceding trial reporting that he was dissatisfied with the verdict—and ended in a verdict in favour of the defendant Co.

The theory upon which the Co. paid the £2000 on the life of the son was this—that assuming the son to contemplate destroying the father for the sake of the ins. money, he did not contemplate the loss of his own life: his death therefore was in that sense an accident. This surmise turned out afterwards to be the true one. A member of the family, who conceived she had not received a fair share of the proceeds of the first pol., made a revelation of the facts. The father had been taken from the parish *on purpose to be sacrificed for the pecuniary benefit of the family*. The payment of the first pol. supplied the funds for fighting the Co. upon the second. The Co., if well advised, would have resisted both the claims on the ground of fraud.

In the case of *Trew and another v. Railway Passengers Assn. Co.* (of Lond.), which was before the English Courts in 1860, the facts were as follow: Frederick Hiorns, an uncertificated bankrupt, described as a “clerk and collector,” effected a pol. of ins. with the defendant Co., whereby it was agreed that if he should sustain any injury caused by accident or

violence within the meaning of that pol. and the conditions thereto, and should die from the effects of such injury within 3 calendar months from the happening thereof, then the funds and property of the Co. should be subject and liable to pay the sum thereby insured. The pol. contained a proviso that no claim should be made in respect of any injury unless the same should be caused by some outward and visible means of which satisfactory proof could be furnished to the directors.

This pol. was effected on the 6th September, 1856. Hiorns was 26 years of age, and unmarried. On the 19th August previously he had effected two pol. on his life. On that day he made a will, by which he appointed his sister and brother (the plaintiffs in the suit) his executrix and executor. He shortly afterwards effected two pol. against death by accident in other accident cos.—so that there were 5 pol. in force, covering we believe close upon £5000. On the 13th September, just one week after effecting the last pol. against death by accident, he obtained leave from his employer to go to Brighton, and have some sea-bathing and a change of air, for the benefit of his health. He had for a few weeks previously been under medical treatment, in consequence, it was alleged, of having strained himself. We now fall back on the official report of the trial :

He accordingly left Lond. by railway between 5 and 6 o'clock in the evening of 13th September, and arrived at Brighton between 8 and 9 o'clock, having taken a ticket which would entitle him to return on the Monday following. He took with him a small carpet bag, containing some clothes and a truss. He spent the following Sunday and Monday in the society of some friends, with one of whom he parted about a quarter to 7 o'clock in the evening, stating that he intended to go to his lodgings, and should then endeavour to have a bathe before he returned to Lond. He accordingly went to his lodgings, which he left about 7 o'clock, apparently going in the direction of the sea, and was not seen alive since. About 8 o'clock, a person who happened to be passing along the beach saw a suit of clothes lying upon the top of the steps of a bathing machine; he could discover no one in the water, and after waiting some time he went for a policeman, who came and took possession of the clothes. These clothes were afterwards identified as those of Hiorns, and the same he was dressed in when last seen alive. *He had a watch, but it was not found, nor any money.* Advertisements were issued, and every inquiry made as to finding any body upon the coast, but without effect, until the 30th October following, when a naked body was washed ashore at Walton-on-the-Naze, which is situated on the Essex coast, and is between 100 and 200 miles distant from Brighton. An inquest was held on this body, which, according to the opinion of the medical men, had been in the water from 6 to 7 weeks; and one of the plaintiffs and two friends of Hiorns deposed that it was his body; the jury, however, found that it was the body of a person unknown.

Upon these facts being stated, the Court was of opinion that there was no evidence that Hiorns was dead; and assuming that he was, there was no evidence that his death was caused by accident within the meaning of the pol. The plaintiffs were nonsuited.

A rule for a new trial was obtained, on the grounds that the accidental death of the assured by drowning whilst bathing was a death covered by the pol.; and also that there was evidence of the death of the ins. In the argument on this second hearing, the counsel for the Co. contended—1. That there was no evidence of the death of the insured. 2. That assuming the body found was that of the insured, there was no evidence that he died from the effects of injury caused by accident within the meaning of the pol. It was incumbent on the plaintiffs to adduce affirmative proof of that fact. 3. But it was consistent with the evidence that when the insured went into the water he was seized with cramp, or attacked by apoplexy, or died from disease of the heart. There was no distinction in this respect between the death of a person whilst in the sea or on shore; in either case there must be satisfactory proof of the cause of death. In support, the case of *The Midland Railway Co. app., Bromley resp.*, was cited, wherein Mr. Justice Crowder had stated the rule to be as follows: “where the evidence is quite as consistent with one view as with the other, the party upon whom the onus lies fails to make out his case.”

The counsel in support of the claim urged that there was evidence which ought to have been submitted to the jury, on the former hearing, that the insured was accidentally drowned whilst bathing. The being drowned whilst bathing was an accident within the meaning of the pol.; it is as much an accident as if he had fallen out of a boat. Accident means “something which happens without intention or design.” If the death was not caused by any voluntary exposure to obvious risk, it was an accident.

Baron Martin:—Assuming that the insured was drowned, and that the body found was his body, what evidence is there of death arising from injury caused by accident? If a person mistook the depth of the water, and in plunging into it, struck his head against a rock and was killed, that would be a death from injury caused by accident, but death from apoplexy would not. . . . It seems to me that the whole evidence in this case is quite consistent with the fact that this person died from natural disease; and that upon his getting into the water, the effect was such as to cause his death by apoplexy or cramp.

Baron Watson was of the same opinion. The case ranges within that class where, if the state of facts is consistent with one view or the other, there is no evidence for the jury. . . . If a man was found dead in a railway carriage, we could not assume that he died from accident; but if he was found with marks of violence upon his body, the case would be different. There is nothing to lead to the supposition that the insured died in the one way rather than the other.

Chief Baron Pollock:—I am also of opinion that the rule ought to be discharged. It appears to me a case of very grievous suspicion; and in fact I believe that the body which was found was not the body of the insured, and that he will some day appear alive.

The case did not end here—it went up to the Exchequer Chamber; and there the

Judges were equally unanimous in another view. The Lord Chief Justice said: "We are all of opinion that this nonsuit was wrong, and that the judgment of the Court of Exchequer in refusing to set it aside was erroneous." In the course of the argument Mr. Justice Crompton said: "If his death was caused by cramp, preventing him from swimming, then he died from injury caused by accident; but death from apoplexy is a death from natural disease." Chief Justice Cockburn, in delivering final judgment, said:

... We ought not to give to these pol. a construction which will defeat the protection of the insured in a large class of cases. . . . There was some evidence that this was the body of the ins.; and assuming that it was, the question ought to have been submitted to the jury, whether he met with his death by drowning. If they found that he died in the water, they might reasonably presume that he died from drowning. It is true that death occurs in the water in some instances from natural causes, as apoplexy or cramp in the heart; but such cases are rare, and bear a small proportion to the number of deaths which take place from the action of the water. We think it ought to be submitted to the jury to say whether the deceased died from the action of the water, or natural causes. If they are of opinion that he died from the action of the water causing asphyxia, that is a death from external violence, within the meaning of this pol.—whether he swam to a distance, or had not strength enough to regain the shore, or on going into the water got out of his depth.

The verdict was in support of the claim. There cannot be any doubt that the real facts of this particular case were sacrificed, in this last decision, to what may be termed the philosophic view, *i.e.* the doctrine of public policy; and that the skilled author of *Box and Cox*, who embodied many of the details of this case in the incidents of his play, manifested a deeper sagacity than the whole bench of Exchequer Chamber Judges, when he recorded his conclusion by the following couplet:

He laid his clothes upon the beach—
And then he walked away.

In the case of *Reynolds v. Accident Ins. Co.*, 1869, the facts were remarkable. The deceased was insured against accidents, but the Co. was not to be liable "in respect of death or injury by accident or violence unless such death or injury shall be occasioned by some external and material cause operating upon the person of the said assured." The insured went on an excursion to Hastings—principally with the object of bathing his legs, which were diseased, in the sea. About 4 o'clock in the afternoon he walked to the beach with a friend, and said he would bathe his legs once more before he returned home. Soon afterwards he was seen undressing by the water, and a little later was in a shallow pool behind a shingle bank on the beach. The last time he was seen alive he was leaning back so that the water might flow over his breast; and the next thing known of him was that he was lying face downwards in the pool dead. When found, water escaped from his lungs in such a manner as to prove that he had breathed after falling into the water. The coroner's jury found that he had fallen in a fit, and had so become drowned. The question then arose whether the death was of such a kind as was contemplated in the pol. The plaintiff's counsel pointed out that the finding of the coroner's jury did not bind any one. The facts were reduced to a special case, and finally it was *held*, that this was a death by accident within the pol.; for though the immediate cause of death was suffocation by water, such suffocation would not have taken place had he not been incapable of helping himself in consequence of the insensibility. It appeared indeed to be considered that the element of accident was embodied in the fact of his having a fit while in the water, and of being unable, in consequence, to escape. The point was a very nice one.

In the same year occurred what will be known to some of the Life and to some of the Accident Cos. as "Lady Firth's case." This lady was found drowned in the river near Bolton Abbey, in Yorkshire—having shortly previously been seen walking rapidly towards that spot. On her life were various short-term life pol. for considerable sums, and an accident ins. for £2000. The claims have never been pressed, and therefore we need not enter into further details.

On the 16th Aug. 1870, a man named Franklin B. Evans took out a pol. for 1500 dols. for 1 month from the Boston office of the *Travelers* Ins. Co. of Hartford, U.S., to cover the risk of an alleged trip to Canada. On the 24th of the same month he was reported drowned while bathing at Hampton Beach, N.H. The only evidence offered of his death was the finding of his clothes upon the beach. The *Travelers* Co. had the courage not to pay the claim, and were roundly abused by some of the newspapers therefor. But in 1872 this same man Evans was apprehended for murdering and mutilating a girl in New Hampshire; and his identity as the man who had insured, and in respect of whom the claim had been made, was established beyond all question. Later he confessed.

The *Ins. Monitor* of N.Y., Oct. 1872, narrates the following incident arising out of the loss of the steam ship *Metis*, on its passage from New York to Boston, U.S.:

Among the victims . . . was a bride of two days, whose husband was saved. The bereaved survivor recognized the body when it was washed ashore, and started with it for his home. But a few hours later another corpse was picked up, bearing indisputable evidence of being the real bride. It would seem as if under such circumstances a mistake of this kind would be impossible, . . . and yet such instances are by no means rare; on the contrary, they are so common, and attended with such strong convictions on the part of the supposed recognizers, that any testimony as to the identity of an individual, where it is in dispute, can only be received with the utmost caution. The evidence demanded by our life cos. in such cases should be of the most convincing character, and be subjected to the most rigid scrutiny.

The case of *Costigan v. Railway Passengers*, heard before Lord Chief Justice Coleridge in February, 1874, is a remarkable one. After the deceased was missed from his home,

and before his body was found, a handbill had been issued by the family, stating that he had left his home, partly dressed, between 3 and 4 o'clock on a certain morning named; that he had been in a desponding state for a month past, owing to a bill of sale; and that he was supposed to have drowned himself. His body was found in the Thames. The administratrix brought an action on the pol. The preceding handbill was produced, and the plaintiff elected a nonsuit.

Many remarkable cases of drowning, and of alleged drowning, come before life cos., and still more before accident cos., where the elements of fraud are but too apparent; but there being, in the nature of such cases, an almost entire absence of legal proof, the cos. have to seek a settlement by way of compromise. We have been professionally concerned in quite a number of such cases during the last few years. As a result, we affirm that no ins. co. should regard death by drowning, in cases where the circumstances cannot be testified to by eye-witnesses, as otherwise than extremely inconclusive. Drowning is one of the most frequent modes of suicide in Great Brit. [FRAUD.] [IDENTITY.] [INS. FRAUDS.] [SUICIDE.]

DROWNING, DEATHS BY (Class, VIOLENT DEATHS).—The deaths regis. under this head in E. and W. range under three categories: (1) those from *Accident or Negligence*; (2) those resulting from murderous intent (*Homicide*); and (3) those resulting from *Suicide*. Of the first and the last we have specific statistics. The deaths of the first order in 10 consecutive years were as follows: 1858, 2124; 1859, 2494; 1860, 2264; 1861, 2351; 1862, 2463; 1863, 2488; 1864, 2714; 1865, 2823; 1866, 2786; 1867, 2676, showing a variation from 110 p. million of pop. in 1858, to 128 in 1859; 136 in 1865, and 126 in 1867.

Those of the third order (suicide) were in 10 consecutive years as follows: 1858, 197; 1859, 208; 1860, 219; 1861, 225; 1862, 204; 1863, 245; 1864, 205; 1865, 230; 1866, 207; 1867, 228, showing an average of about 11 p. million of the pop.

The deaths in 1867 of the first order were: males, 2259; females, 417. Of the males 258 were under 5; 289 between 5 and 10; 233 between 10 and 15; 239 between 15 and 20; 225 between 20 and 25; 342 between 25 and 35; 270 between 35 and 45; 180 between 45 and 55; 124 between 55 and 65; 83 between 65 and 75; 15 between 75 and 85; and 1 between 85 and 95. Of the females, 130 were under 5, and the remainder distributed pretty evenly over the other ages of life.

The deaths in 1867 of the third order were: males 134, deaths ranging chiefly through middle ages of life; females 94, ranging same as males.

In 1849 a paper was read before the Statistical So. of Lond. by Dr. P. A. Schleisner, M.D.: *Vital Statistics of Iceland*, wherein that writer says:

I believe there is no country in Europe where the number of those who perish every year by drowning is so high as in Iceland. This results from fishing being the main occupation of the people. As the greater part of those who perish by drowning in Iceland are males between 15 and 60 years of age, I have considered that circumstance in constructing the following T., in which I have made the comparison between Denmark, Iceland, and the Faroe Islands.

Here is the T.

	Iceland.	Faroe Islands.	Denmark.
Total number drowned from 1835—44	530'	41'	2503'
Average yearly number drowned	53'	4'	250'
Number of inhabitants on an average of the Census of 1835, 1840, and 1841... ..	57,229'	7314'	1,284,817'
Drowned out of 100,000 living individuals ...	92'6	56'1	19'5
Drowned out of 100,000 males living be- tween 15 and 60 years of age	351'6	196'9	67'3

The writer points out that from this T. it will be seen that the proportion of the drowned is more than five times as large in Iceland as in Denmark; and if we compare the number of drowned in Iceland with the total number of deaths, it will be found that the proportion is 25'4 p.c. out of the total yearly number of males dying between 15 and 60 years of age.

In E. and W. the average ann. number of deaths by drowning in the years 1858—64 was 2629—2414 by accident, and 215 by suicide; the deaths in 1865 from this cause were 3053—2823 by accident, and 230 by suicide. The ann. rate of mort. from drowning by accident to 100,000 of pop. was 14'0 in the five years 1850—54; 13'2 in the five years 1855—59, and 12'2 in the five years 1860—64. In 1865 it was 13'6. In 1858, 271 deaths in Lond. were ascribed to drowning, being in the proportion of 10'1 p. 100,000 of pop.; in 1867 the deaths were 372, or 12'1 p. 100,000 of pop. In the ten years 1858—67, 3367 deaths were regis. from this cause—viz. 2965 by accident, and 403 by suicide.

DRUMMOND, JOHN, was for over 30 years a Director and one of the "Managers" of the *Sun F.* By virtue of that position he was chosen Chairman of the Committee of the Lond. Fire Engine Estab.; for the duties of which office, however, he had no especial qualification. He gave evidence at considerable length before the Select Parl. Committee on Fires in the Metropolis, which sat in 1862; from that evidence we shall have occasion to quote under other heads. [SUN FIRE OFFICE.] He was essentially a follower of that

people who, in ancient times, dwelt between Persia and the Indus, who adored one God, "whom they supposed to be resident in the *Sun*, and operating through its rays; and they worshipped this God through the medium of the sun and its rays."—*Ency. Brit.* art. EGYPT. He died in 1864.

DRUMMOND, S.—Underwriter of Lond. Branch of *Pacific Marine*.

DRUNKARDS.—Drunkards were to be excommunicated in the early Church, A.D. 59 (1 *Cor.* vii.). In England a Canon Law forbade drunkenness in the clergy, 747. Constantine, King of Scots, punished it with death, 870. By 21 James I. c. 7 (1623), a drunkard was rendered liable to a penalty of 5s. or 6 hours in the stocks. The effect of drunkenness upon the duration of life will be discussed in detail under *INTEMPERANCE*.

DRY.—Books on Insurance are generally reputed to be "dry." Nothing is dry which is useful; and knowledge which is relevant has all the interest of romance to those who know how to profit by it.

DRY EXCHANGE (from the Latin *cambium siccum*).—A term invented in former times for the disguising and covering of Usury; in which something was intended to pass on both sides: whereas nothing passed but on one side, in which respect it was called dry. It was made a punishable offence by 3 Hen. VII. c. 5 (1486). [*USURY.*]

DRY SEASONS.—Many epidemics have occurred after very dry seasons. Hecker, speaking of the plague in China in 1334, writes—"Here a *parching drought*, succeeded by famine, commenced in the tract of country watered by the rivers Kiang and Hoai; and this (he adds) was followed by such violent torrents of rain in and about Kingsai, that more than 400,000 people perished in the flood." Again, in Tche, after an unexampled *drought*, a plague arose which is said to have carried off 5,000,000 people. The plague at Constantinople, in 1541, succeeded to the *drought* of 1540. Our great cholera year, 1854, was remarkable for the small amount of rain which fell: the register at Greenwich giving only 18·7 inches, which was 7·3 inches less than the average during a period of 39 years. Mr. Lowe, writing from Highfield House to the *Times*, 16th January, 1855, says: "The long drought of 1854 was another remarkable feature: the deficiency in the amount of rain falling being nearly 12 inches. The amount which fell in February, March, April, June, September, and October, being for the *six months less than 3 inches*; and in this period out of 180 days, 129 were fine. In March, April, and September there were 42 cloudless nights—September being particularly free from clouds."—*Haviland*.

By a consideration of such facts we learn how it is that *famines* and *plagues* are frequently found associated. [*COMETS.*] [*EPIDEMICS.*] [*FAMINES.*] [*PLAGUES.*]

DUALIN.—A new explosive substance, invented by Carl Dittmar, a Prussian, and made known in 1870. It is said to be from four to ten times more powerful than gunpowder. [*EXPLOSIONS.*]

DUBLIN.—The capital of Ireland, and a very ancient city, said to have been founded A.D. 140. By other authorities Alpinus is said to have brought "the then rude hill into the form of a town." St. Patrick's Cathedral founded 448. Charter granted by Henry II. 1190. Great gunpowder explosion 1693. Fire at the Parliament House 1792. Great fire at Custom House 1833. Royal Arcade burnt 1837. Terrible storm raged 1839. Great fire, six persons burned to death, fire brigade greatly censured, 7 June, 1866. These are the chief public events falling within our range.

The following ins. asso. have been founded in this city:

Year of Estab.	Name of Co.	Scope of Business.	History.
1799	Commercial	Fire, Life, and Marine	Trans. to Guardian in 1826?
"	Royal Exchange	Fire, Life, and Marine	Life pol. to National (Irish) 1821
1810	Widows Gen. Annu. and Endow. So.	Annuities.	
1814	Marine	Life and Marine	Ceased to exist in 1827
1816(?)	Liberal	Annuities.	Still existing.
1822	National Assu. Co.	Fire, Life, Marine	Still carrying on bus.
1823	Royal... ..	Fire and Life	Passed away in 1827
"	Shamrock	Fire and Life	Passed away in 1825
1824	Patriotic	Fire and Life	Still carrying on bus.
"	St. Patrick's	Life and Marine	Passed away in 1829
1825	Alliance	Fire, Life, Marine	Died out in 1836
"	Phoenix	Fire	Died out in 1828
1826	Commercial		Died out in 1838
1837	Dublin Widows Fund	Annuities	Carrying on business
1844	Irish Provident... ..	Life and Sickness... ..	Fate unknown
1866	Etna	Fire and Marine	Trans. to United Ports 1868
1867	Amicable Mut.	Life	Trans. to United Ports 1868

[We assume there may have been some others than those here named: of these we shall be glad to be informed.]

Most of the principal ins. offices of England and Scotland, as well as some of the U.S. offices, have agencies or branches in Dublin.

Regarding the general or special mort. of the city, a remarkable number of obs. have been taken : these we now proceed to notice.

The first known *Bill of Mort.* for this city is the following : “ *Dublin*, A Bill of Mort. from the 26th of July to the 2nd of August, 1662” :—

	Baptiz.	Plague	Spot Fea.	Small Pox	Consum.	Fever	Aged	Rickets	Flux
Saint Michans	1			1			1		
S. Katharines & S. James	2								1
S. Audoens					1				
S. Michaels	2				2				2
S. Johns							2		2
S. Nicholas without	5				1		1		1
S. Nicholas within	1								1
S. Warbrows & S. Andrews	2				1				
S. Keavans					1				
S. Brides	1				1				

The total Baptized 14. Total Burials 10 [should be 20]. *Jacob Thring*, Reg.

Graunt, in the appendix to his *Natural and Political Obs.*, pub. 1661 [we quote from 3rd ed. 1665], makes an effort to estimate the pop. of Dublin from this Bill, of which he gives a copy. He says :

My first obs. shall be, that at Dublin the number of weekly burials being about 20, and those of Lond. about 300, as also the number of people reckoned to be within the Limits of the B. of Mort. at Lond. to be 460,000; it will follow that the number of inhabitants of Dublin be about 30,000, viz. about one-fiftieth part of those in and about Lond., which agrees with that number which I have heard the Books of Poll-money, raised but little before the time of this Bill, have exhibited as the number of inhabitants of that city : so as altho' I do not think one single Weekly Bill is sufficient to ground such a conclusion upon, yet I think that several yearly Bills is the best of the easie ways from which to collect the number of the people.

Secondly, altho' I take it for granted that in *Dublin* there be more Born than Buried, because the same hath appeared to be so in Lond. by the B. of Mort. before the year 1641, when the Civil Wars began, and much more eminently in *Amsterdam*, as shall be hereafter shewn; yet there are but 14 set down as christened; which shews, that the defect there is much the same as at Lond., whether the cause thereof be negligence in the Register, or non-conformity to public order, or both, I leave to the curious. I believe the cause is also the same, for as much as I heard it to be a maxim at Dublin, to follow, if not forerun, all that is, or as they understood will be, practised in Lond.; and that in all particulars incident to humane affairs.

In Sir William Petty's rare tract, *Obs. on the Dublin B. of M. 1681, and the State of that City*, pub. 1683, there was contained a small weekly Bill of the “Burials and Births of 1666,” together with some forms marked A, B, and C, for the purpose of effecting a more useful and complete registry of the deaths and casualties in Dublin at that period. The learned author says thereon :

The obs. upon the *Lond.* B. of Mort. have been a new light to the world; and the like obs. upon those of *Dublin* may serve as snuffers to make the same candle burn clearer. The *Lond.* obs. followed from B. regularly kept for near 100 years, but these are squeezed out of the six straggling *Lond.* B., out of 15 *Dublin* B., and from a note of the families and hearths in each parish of *Dublin*; which are all digested into the one T. or sheet annexed, consisting of three parts, marked A, B, C; being indeed the A, B, C, of public Economy, and even of that policy which tends to Peace and Plenty. . . .

The Burials in *Dublin* for the said 6 years were 9865, the sixth part or medium whereof is 1644; which is about the twelfth part of the *Lond.* burials; and about a fifth part over. So as the people of *Lond.* do hereby seem to be above twelve times as many as those of *Dublin*.

The Births in the same time at *Dublin* are 6157, the sixth part or medium whereof is 1026, which is about five-eighth parts of the 1644 burials; which shews, that the proportion between the burials and the births are alike at *Lond.* and *Dublin*, and that the accmpts are kept alike; and consequently are likely to be true, there being no confederacy for that purpose. . . .

Finally we have the following table (given on page 410) of Families and Hearths, Burials and Births, in Dublin at this early period, upon which he offers the following observations :

It appears 1. That the housing of Dublin is such, as that there are not 5 hearths in each house one with another, but nearer 5 than 4.

2. That in St. Warburgh's parish are near 6 hearths to an house. In St. John's 5. In St. Michael's above 5. In St. Nicholas Within above 6. In Christ Church above 7. In St. James' and St. Catherine's, and in St. Michan's, not 4. In St. Kevan's about 4.

3. That in St. James', St. Michan's, St. Bride's, St. Warburgh, St. Andrew's, St. Michael's, and St. Patrick's, all the christenings were but 550, and the burials 1055, viz. near double; and that in the rest of the parishes the christenings were 5 and the burials 7, viz. as 457 to 634. Now whether the cause of this difference were negligence in accmpts, or the greatness of the families, etc., is worth inquiring.

4. It is hard to say in what order (as to greatness) these parishes ought to stand, some having most families; some most hearths; some most births, and others most burials. Some parishes exceeding the rest in 2, others in 3 of the said 4 particulars; but none in all 4. Wherefore this T. ranketh them according to the plurality of the said four particulars, wherein each excelleth the other.

5. The *Lond.* obs. reckon 8 heads to be in each family; according to which estimation there are

32,000 souls in the 4000 families of *Dublin*; which is but half of what most men imagine; of which but about one-sixth part are able to bear arms, besides the royal regiment.

6. Without the knowledge of the true number of the people, as a principle, the whole scope and use of the keeping bills of births and burials is impaired; wherefore by laborious conjectures and calculations to deduce the number of people from the births and burials may be ingenious, but very preposterous.

7. If the number of families in *Dublin* be about 4000, then 20 men in one week (at the charge of about five pound, surveying eight families in an hour) may directly, and without algebra, make an account of the whole people, expressing their several ages, sex, marriages, title, trade, religion, etc., and those who survey the hearths, or the constables or parish clerks (may, if required), do the same *ex officio*, and without other charge, by the command of the chief governor, the diocesan, or the mayor.

8. The Bills of *Lond.* have since their beginning admitted several alterations and improvements; and eight or ten pounds p.a. surcharge would make the B. of *Dublin* to exceed all others, and become an excellent instrument of government. To which purpose the forms for weekly, quarterly, and yearly bills are humbly recommended.

The Parishes of Dublin.	Anno 1671		Anno 1670, 71, & 72. at a medium.	
	Families.	Hearths.	Burials.	Births.
1. St. Katherine's & St. James	661	2399	161	290
2. St. Nicholas Without	490	2348	207	262
3. St. Michan's	656	2301	127	221
4. St. Andrew's with Donabrook	483	2123	108	178
5. St. Bridget's	416	1989	70	100
6. St. John's	244	1337	70	138
7. St. Warbrough	267	1650	54	108
8. St. Audaens	216	1081	53	121
9. St. Michael	140	793	44	59
10. St. Kavens	106	433	64	133
11. St. Nicholas Within	93	614	28	34
12. St. Patrick's Liberties	52	235	21	44
13. Christ Church & Trinity College, p. estimate	26	197	—	1
Houses built between 1671 & 1681, p. estimate	3850	17,520	1007	1689
	150	550		
	4000	18,070		

He then furnishes some forms exceedingly suited to the purpose, including schedules of the "causes of death."

We have some further obs. on these Bills in "a postscript to the stationer," the origin of which is thus honestly stated: "Whereas you complain that these obs. make no sufficient bulk, I could answer you, that I wish the bulk of all books were less; but do nevertheless comply with you in adding what follows, viz.:

1. That the parishes of *Dublin* are very unequal; some having in them above 600 families, and others under 30.

2. That 13 parishes are too few for 4000 families; the middling parishes of *Lond.* containing 120 families; according to which rate there should be about 33 parishes in *Dublin*.

3. It is said that there are 84,000 houses or families in *Lond.*, which is 21 times more than there are in *Dublin*; and yet the births and burials of *Lond.* are but 12 times those of *Dublin*: which shows that the inhabitants of *Dublin* are more crowded and straightened in their housing than those of *Lond.*; and, consequently, that to increase the buildings of *Dublin* will make that city more conformable to *Lond.*

4. I shall also add some reasons for altering the present forms of the *Dublin* B. of Mort., according to what hath been here recommended, viz.: (1) We give the distinctions of males and females in the births only; for that the burials must, at one time or another, be in the same proportion with the births.

(2) We do in the weekly and quarterly bills propose that notice be taken in the burials of what numbers dye above 60 and 70; and what under 16, 6, and 2 years old; *foreseeing good uses to be made of that distinction.* (3) We do in the yearly bill reduce the casualties [causes of death] to about 24, being such as may be discerned by common sense, and without art; conceiving that more will but perplex and imbroil the account. And in the quarterly bills we reduce the diseases to 3 heads, viz. contagious, acute, and chronic; applying this distinction to parishes, *in order to know how the different situation, soil, and way of living in each parish doth dispose men to each of the said 3 species*; and in the weekly bills we take notice not only of the plague, but of the other contagious diseases in each parish; that strangers and fearful persons may thereby know how to dispose of themselves. (4) We may mention the number of the people as the fundamental term in all our proportions, and without which all the rest will be almost fruitless. (5) We mention the number of marriages made in every quarter, and in every year; as also the proportion which married persons bear to the whole; *expecting in such obs. to read the improvement of the nation.* (6) As for religions, we reduce them to three, viz. 1. Those who have the Pope of Rome for their head. 2. Who are governed by the laws of this country. 3. Those who rely respectively upon their own private judgments. Now whether these distinctions should be taken notice of or not, we do but faintly recommend: seeing many reasons *pro* and *con* for the same; and therefore, altho' we have mentioned it as a matter fit to be considered, yet we humbly leave it to authority.

It is curious to see how this writer covered the ground in all the material considerations which have yet been found to attach to populations in general, and to dwellers in towns in particular.

In 1686 Sir William Petty reprinted his tract under the title of *Further Obs. upon the*

Dublin Bills, or Accounts of the Houses, Hearths, Baptisms and Burials of the City. In this was contained the following B. of Mort. for 1682 :

Dublin, 1682.

Parishes.	Houses.	Fire-places.	Baptiz'd.	Buried.
St. James	272	836 }	122	306
St. Katherines	540	2918 }		
St. Nicholas without, and St. Patricks ...	1064	4082	145	414
St. Bridgets	395	1903	68	149
St. Audaen	276	1510	56	164
St. Michael	174	884	34	50
St. Johns	302	1636	74	101
St. Nicholas within and Christ Church Lib. ...	153	902	26	52
St. Warbrough	240	1638	45	105
St. Michans	938	3516	124	389
St. Andrews	864	3638	131	300
St. Kevans	554	2120 }	87	233
Donobrook	253	506 }		
	6025	25,369	912	2263

Upon this he remarks: "The T. hath been made for the year 1682, wherein is to be noted: "

1. That the houses which *anno* 1671 were but 3850, are *anno* 1682, 6025; but whether this difference is caused by the real encrease of housing, or by fraud and defect in the former accounts, is left to consideration. For the burials of people have increased but from 1696 to 2263, according to which proportion the 3850 houses *anno* 1671, should *anno* 1682 have been but 5143; wherefore some fault may be suspected as aforesaid, when farming the hearth-money was in agitation.

2. The hearths have increased according to the burials, and $\frac{1}{3}$ of the said increase more, viz. the burials *anno* 1671 were 1696, the $\frac{1}{3}$ whereof is 563, which put together makes 2259, which is near the number of burials *anno* 1682. But the hearths *anno* 1671 were 17,500, whereof the $\frac{1}{3}$ is 5833, making in all but 23,333; whereas the whole hearths *anno* 1682 were 25,369, viz. $\frac{1}{3}$ and better of the said 5833 more.

3. The houses were *anno* 1671 but 3850, which if they had increased *anno* 1682 but according to the burials, they had been but 5143, or according to the hearths had been but 5488, whereas they appear 6025, increasing double to the hearths. So as 'tis likely there hath been some error in the said account of the houses, unless the new houses be very small, and have but one chimney apiece, and that $\frac{1}{4}$ of them are untenanted. On the other hand, 'tis more likely that when 1696 died p.a. there were near 6000; for 6000 houses at 8 inhabitants per house would make the number of the people to be 48 thousand, and the number of 1696 that died, according to the rule of 1 out of 30, would have made the number of inhabitants about 50 thousand: for which reason I continue to believe there was some error in the account of 3850 houses as aforesaid, and the rather because there is no ground from experience to think that in 11 years the houses in *Dublin* have increased from 3850 to 6025.

Moreover, I rather think that the number of 6025 is yet short, because that number at 8 heads per house, makes the inhabitants to be but 48,200; whereas the 2263 who died in the year 1682, according to the aforementioned rule of 1 dying out of 30, makes the number of people to be 67,890; the medium betwixt which number and 48,200 is 58,045, which is the best estimate I can make of that matter, which I hope authority will ere long rectify, by direct and exact inquiries.

4. As to the births, we say that *anno* 1640, 1641, and 1642, at *Lond.* just before the troubles in religion began, the births were $\frac{3}{4}$ of the burials, by reason, I suppose, of the greatness of families in *Lond.* above the country, and the fewer breeders, and not for want of registering. Wherefore deducting $\frac{1}{4}$ of 2263, which is 377, there remains 1886 for the prob. number of the births in *Dublin* for the year 1682; whereas but 912 are represented to have been christen'd in that year, though 1023 were christen'd *anno* 1671, when there died but 1696; which decreasing of the christenings, and increasing of the burials, shows the increase of non-registering in the legal books, which must be the increase of Roman Catholics at *Dublin*.

The scope of this whole paper therefore is, That the people of *Dublin* are rather 58,000 than 32,000; and that the Dissenters, who do not regis. their baptisms, have increased from 391 to 974; but of Dissenters none have increased but the *Roman Catholics*, whose numbers have increased from about 2 to 5 in the said years. The exacter knowledge whereof may also be better had from direct inquiries.

There is still existing an orig. copy of *A Yearly B. of M. for the City and Suburbs of Dublin ending the one-and-twentieth of March, 1683*. It contains the baptisms and burials for the different parishes—the former amounting to 1045; the latter to 2154. Mr. R. W. Wilde, from whom we obtain an account of this Bill, says of it:

It does not, however, contain any record of the deaths and burials of the parish of St. Anne, nor of George's, Luke's, Mary's, Mark's, Paul's, or Thomas's, which are all specified in some of the subsequent Bills; neither does it contain any record of the French burials in the three graveyards belonging to that congregation: but under the head of "diseases and casualties" we find the item "Quakers," of whom 7 deaths are recorded. At first we find a comparison of the yearly, quarterly, and weekly baptisms and burials (in which the sexes, and in some cases the ages are given) since the pub. of the previous Bills and the sheet concludes with "The assize of Bread, by order of the Lord Mayor." An examination of the diseases and casualties specified in this Bill affords matter for reflection upon the state of disease, the condition of medical knowledge, and the moral and social position of the people of *Dublin* at that time.

The B. of Mort. for the year ending 21 March, 1683—this was when the legal year then ended—contains, we assume, for the first time, the "Causes of Death," with details as to ages at death, and other circumstances such as Sir W. Petty had suggested. We propose to give a complete copy of this B., which was as follows:

A yearly Bill of Mort. for the City and Suburbs of Dublin, ending the one and twentieth of March, 168 $\frac{1}{2}$.

BAP.		Bur.		Bur.	BAP.
016	St. Patrick's	064	Christ Church	006	001
140	St. Keaven's	194	St. Michaels	020	058
054	St. Audoen's	142	St. Michans	367	166
025	St. Andrew's	241	St. Nicholas' within...	044	049
074	St. Bridgit's	128	St. Nicholas' without ...	316	131
088	St. John's	146	St. Warburg's	132	074
109	St. Cath. and St. James...	373			

Of Diseases and Casualties this year.

Aged	159	Surfeit	001
Ague	004	Sore legg	001
Apoplex	001	Spotted Fever	001
Consumption	322	Sore mouth	001
Convulsion	238	Sudainly	003
Child-bed	036	Teeth	187
Cold, Cough, & Chincough	019	Tent	010
Canker	001	Vomiting & Loosness ...	007
Collick	002	Worms	001
Dropsy	019	Dyed in Prison	001
Evil	004	Overlaid	001
Fever	527	Hurt by accident	001
Flux	078	By a kick	001
Gravil & Stone	006	Broken legg	001
Grips & Gripping of the Guts	003	Fell of the new buildi ...	001
Infants	178	Bruised	001
Jaundice	003	Broken Thigh	001
Impostume	004	Drowned	001
Lethergy	001	Choked her self	001
Livergrown	001	Burnt	001
Meazles	122	Found mur. in aunge fiel...	001
Ptisick	002	Hurt & illused by her master)	001
Palsy	002	and mistriss	001
Plurrisy	002	Hanged her self	001
Quinsy	002	Hanged Himself	001
QUAKERS	007	Drowned her self	001
Rickets	016	Poysoned her self	001
Rising of the Lights	001	French Pox	001
Stoping of the Stomach...	008	Killed by the Goal man ...	001
Small pox	143	Murdred	001
Swelling of the Throat ...	001	Hanged at the Gallows ...	010
Males Bur. this year ...	1114	Females bap. this week ...	0010
Females bur. this year ...	1040	Under 16	1227
Males bap. this year ...	640	Above 16	0931
Females bap. this year ...	405	Tot. bur. this Year	2154
Males bur. this quarter ...	0343	Tot. bap. this Year	1045
Females bur. this quarter	331	Tot. bur. this quarter ...	0673
Males bap. this quarter ...	150	Tot. bap. this quarter ...	0277
Females bap. this quarter	122	Tot. bur. this week	0075
Males bap. this week ...	0013	Total bap. this week ...	0023
Decr. in bur. this year ...	0105	Incr. in Chr. this year ...	0135
Incr. in bur. this quarter...	0125	Incr. in Chr. this quarter	0022
Incr. in bur. this week ...	0026	Incr. in Chr. this week ...	0009

Assize of Bread by order of the Lord Mayor.

Penny white, 9 ounces & 1 quarter.
Penny wheaten, 14 ounces & 4 pennyweight.
Penny household, 19 ounces.

WILLIAM BRERETON, *Register.*

In 1688 Sir William Petty brought the subject of the Dublin Bills under the notice of the Royal Socy. The paper will be found in *Phil. Trans.* for that year.

There is, or was, in Trinity College Library, Dublin, a manuscript of Dr. Willoughby's,

under date 1690: *Obs. on the B. of M. and Increase of People in Dublin; the Distempers, Air, and Climate of this Kingdom; also of Medicines, Surgeons, Physicians, and Apothecaries.* It bears the indorsement, "Sent to the Right Rev. Dr. William King, Bishop of Derry, whose remarks therein are annexed in a letter to the author, 20 May, 1691." Dr. Willoughby was an English physician settled in Dublin, and a man of undoubted renown. He says:

The B. of M. have not been kept in Dublin much above ten years. I have been constantly served with them for these 8 years, and thought I had a sufficient stock to make some obs. upon; but when I came to review my collection, I found it very imperfect: partly by neglect of servants whom I entrusted to put them on the file, and partly through my own frequent absence from home; so that I was not able to make up all the yearly bills, and was fain to be content with those I have entered, not knowing where to supply my want of them in all Dublin.

The subsequent portion of this MS. discusses the question of the average yearly mort. as well as the various diseases specified in the Bills.

The pop. of Dublin was enumerated in 1695 [*Phil. Trans.* No. 261], and found, "by an exact survey," to be 40,508. We have no account of the burials during the same year; but from 1661 to 1681 the medium had been 1613; and from 1715 to 1728 it was 2123. Dr. Price, upon these returns, estimated the deaths in the city in 1695 at 1800; "and this makes 1 in 22 die annually." That was evidently much nearer the correct estimate than Petty's 1 in 30; and at once accounts for the erroneous estimate of the pop. made by that most ingenious writer, to whose suggestions we may feel pretty certain was due the enumeration.

The Bills of Mort. for this city in 1742 give the following figures: christened, 1357; buried, 2320; indicating the pop. to be about 75,000.

In 1750 Dr. Thomas Short pub. his work: *Obs. on the City, Town, and Country B. of M.* He refers to Sir William Petty's notice of the Dublin Bills, but overlooks altogether the Bill previously given by Graunt. He says: "After this [Petty's pamph.] I met with no other public account or notice of the Dublin B. till 1747; but the worthy Dr. Rutter [? Rutty] there procured me an ann. abstract of them from 1715 to 1746—only the births and burials of 1739 are wanting, because before that year they ended their year with March 24th, but since then with December 25th."

In the Dublin Library there is a small quarto vol. of weekly B. of M. for 1752-3.

The Dublin Bills appear to have been prepared and distributed for a small weekly allowance by the Gov. Registrar—whose name was attached to each of the later ones. Payments made for this purpose are recorded in the Treasury Office, Dublin, under head "Concordatum," as follows: "July 7, paid Arthur Cowan, Registrar of the B. of M. for two years' allowance to the 30 May, 1755, £6 17s. 7½d." In the Commons' Journal of 1763 is recorded a similar item to the same person for a like sum.

The Bill for the year ending 28 December, 1760, is of a much larger size than any of those previously noticed. It contained the baptisms and burials of all the parishes omitted in that for 1683: these having prob. in the mean time been added to the city. In the section for the parishes there is a record of 9 births and 40 burials among the French. In this and most of the subsequent bills the items for "disease and casualty" were much less than in the previous bills, seldom exceeding 40; while the portion devoted to the assize of bread is increased, and contains likewise the fixed price of meal, wheat, oats, etc.; and also several extracts from Acts of Parl. relating to "bakers, butchers, ingrossers, forestallers, regrators, or others." At the foot: "Post this for the use of your family." The baptisms in 1760 were 1715, and the burials 1993—of these 878 resulted from fever! [BILLS OF MORT., 1760.]

The Bill for 1766 gives us some insight into the prevalent diseases of the period. The baptisms were returned as 2279; and the burials as 2407—but of these 1374 were set down to fever, and 14 to spotted fever. Hence more than three-fifths of the whole arose from fevers of various classes—smallpox also prevailed severely.

In 1767 the baptisms were 2120—the burials 2211. Both fever and smallpox carried off large numbers. The Bill this year was made up to 27th December.

The name of Dr. Rutty occurs prominently in relation to the B. of M. for Dublin. He pub. *Chronological Hist. of the Weather and Seasons, and the Prevailing Diseases in Dublin.* His obs. extended over a period of 42 years, and he availed himself largely of the bills from 1725 to 1766. In his *Essay towards a Natural History of the County of Dublin*, pub. 1772, was included a short tract, "Observations on the B. of M. in Dublin," wherein their results are discussed, and a comparison made between the bills of Lond. and Dublin. Dr. Rutty died in 1775, and it appears that the Bills for Dublin then altogether ceased—at least for a time.

"B. of Mort.," says Stoker in his *Obs. on Varioloid Diseases*, "have not been satisfactorily preserved in Dublin; an omission which, in so great a city, is much to be regretted. Had we such documents, they would, I am persuaded, afford decided evidence of the value of vaccination, and of the necessity for its being more generally adopted, by showing the alarming numbers who were destroyed even in the course of last year [1821] within the precincts of this city by the natural smallpox."

Dr. W. R. Wilde, in his "Rep. upon the Tables of Deaths" made to the Commissioners of the Irish Census of 1841, and pub. in the official Rep. of that Census, furnishes in

parish engines, there are those of the ins. cos., and two of a superior class, which have been provided by the corp. One of these latter is in the hands of the police, and worked by them voluntarily, pending arrangements which it is hoped will be carried out in connexion with the new high-pressure water supply about to be estab. There was a steam fire engine. These facts were communicated to the Parl. Committee on Fires in the Metropolis, which sat in Lond. during this year.

In 1862 a paid fire brigade was organized after the then existing principle in New York. There are also several fire escapes and other appliances necessary for efficient service. There was at this period no Building Act in force in this city.

In 1863 was enacted the 26 Vict. c. 11—*An Act for the Regis. of Births and Deaths in Ireland*. Under the authority of this Act the Reg.-Gen. of Ireland pub. an ann. rep. The first rep. contained the returns for 1864. They are not as complete as could be desired, but will be spoken of more in detail under IRELAND. The births regis. in Dublin in 1864 were 7384, or 29.0 p. 1000 of the pop.; and the deaths were 6260, or 24.6 p. 1000.

In 1864 there were 68 fires, of which totally damaged 12, severely damaged 12, partially damaged 44. In 1865 there were 75 fires, 12 totally damaged, 15 seriously, and 48 partially. In 1866 there were 85 fires, 10 totally damaged, 20 seriously damaged, and 55 partially damaged. It was estimated that with the new water service there would be sufficient pressure to throw the water 200 feet. Heretofore the supply had been only moderate. The National Ins. Co. has a very powerful manual engine. It was estimated in 1867 that from half to two-thirds of the property in the city was insured from fire.

In 1864 was enacted the Dublin Improvement Amendment Act. In 1865 Bye-laws under this Act were framed, and a sanitary committee of the corp. with 8 sanitary sergeants (then for the first time employed) were appointed. Through the powers obtained under this Act a vast improvement was effected in the condition and repair of the dwellings of the humbler class. But the most important object attained was the control, for the first time, of many houses let in tenements at weekly rents not exceeding 3s. p. week, then estimated at 9000. In 1866, following up the powers of the Act, the Public Health Committee of the Dublin Corp. was constituted. The result of the work accomplished by these several means did not take long to manifest itself.

Admissions to the City of Dublin Fever Hospitals during the years ending

September, 1865—Admitted	...	...	...	...	4411
" 1866 "	...	...	...	...	3781
" 1867 "	...	...	...	...	2860

We regret we have not at hand the later figures. The work is still progressing. There are upwards of 300 public fountains in the city. Many of these have been recently provided, and are a great boon to the poorer classes.

In 1867 a paper was read before the Social Science Congress by Henry J. P. Maclean: *On the Objects, Operations, and Effects of the Proceedings of the Public Health Committee of the Corp. of Dublin*. From this valuable paper we have drawn some of the preceding facts.

From the Reg.-Gen.'s Rep. in 1867 we obtain the following details. The number of deaths regis. in that year in the city and suburbs was 8607, being in the proportion of 27 per 1000 of pop. The epidemic and contagious class of diseases proved fatal to 1909 persons, or 1 in 4.5 of the total deaths. Measles was the most fatal epidemic, causing 405 deaths, or 1 in 21 of the total deaths. In 1866 only 54 deaths were referred to measles. Next to measles fever was the most fatal epidemic, causing 359 deaths, against 537 in 1866. Diarrhoea caused 320 deaths, scarlatina 259, and whooping-cough 178 deaths. Of the deaths regis. from constitutional diseases 1049, or 1 in 8.2, of the total deaths were ascribed to consumption. Of the deaths from local diseases no less than 1664 were caused by diseases of the respiratory organs. Of 164 violent deaths, 36 were caused by burns and scalds, 47 by drowning, and 7 by suffocation. Seven deaths were referred to homicide, and 12 deaths were regis. from suicide. The number of deaths regis. in each quarter of the year 1867, respectively, was 2752, 2173, 1810, and 1872. Of the 8607 deaths, 2709, or 31 p.c., occurred in public institutions—viz. 1214 in hospitals, prisons, and lunatic asylums, and 1495 in workhouses. The abstract of the ages shows that 2800, or 32.5 p.c., of the deaths occurred among children under five years of age, and 440, or 5.1 p.c., were those of children aged five and under ten years of age. The number of births regis. during the year 1867 in the city of Dublin was 8241, or 26 per 1000 of pop. The mean temperature of the year 1867 was 49 deg.

This city suffered severely by the smallpox epidemic in 1872—its mort. from this cause during the first half of the year being 7.6 p. 1000, or about 3 times greater than it had been in Lond. The total mort. in the city from this cause was 1150. The deaths from measles were 202. The entire mort. of the city for the year was 29 p. 1000; but in some of the suburban districts the rate was only 14 p. 1000: which shows the rate of other portions of the city to have been terrible.

From the Rep. of Capt. Ingram, the Chief of the Dublin Fire Brigade, we learn the following particulars regarding the fires in 1872. The total number of alarms was 188, of which 5 were false, 111 were only chimney fires, 72 were more extensive. Two resulted in total destruction of buildings, 12 in serious damage, 55 in slight injury, and in

three instances hayricks were burnt. Five persons were rescued by means of fire-escapes from positions of extreme danger. The strength of the brigade is proportionately lower than in any other great city or town in the empire; but the men are in excellent health, notwithstanding the prolonged and severe duty entailed on individual members by the smallness of the force, which only numbers 15 men. The total amount of wages paid to them was £1446 6s. 6d.

The city of Dublin includes within the municipal boundary an area of 3807 acres, containing in 1861 22,935 inhabited houses, occupied by 254,800 persons. In 1871 the pop. was 245,722, of whom males, 115,363; females, 130,359. The number of houses 25,042.

DUBLIN FIRE INS. CO.—We see in the early part of the present century references to the "Dublin Fire Ins. Co.," but do not find any specific information. There may have been such a Co. anterior to any of those named in our list.

DUBLIN, MORTALITY T. FOR.—The Commissioners for the Irish Census of 1841, in an able and elaborate rep., supplied (*inter alia*) a Mort. T. for Ireland; and another for the City of Dublin. It was not assumed that these T. were absolutely correct, for reasons candidly stated in their rep., and to which we shall refer in some detail under IRELAND. These were the first Mort. T. for Ireland which had been prepared, and as such possess much interest. The T. for Dublin we give here; subject to some alteration of arrangement of cols. In cols. 2, 3, 4, 7, 8, 9, we have omitted the fractions—in the case of all fractions above 5 we have added 1 to the principal number.

CITY OF DUBLIN.—TABLE OF MORT. FOR 1841.

MALES.					FEMALES.				
Age.	No. of the living at each and every greater age.	No. who ann. complete each year.	No. who ann. die in their next year.	Expec. of life at each age.	Expec. of life at each age.	No. of the living at each and every greater age.	No. who ann. complete each year.	No. who ann. die in their next year.	Age.
0	78,350	3284	963	23'85	27'53	88,764	3223	800	0
1	75,547	2321	251	32'55	35'46	85,941	2423	225	1
2	73,351	2070	138	35'44	38'05	83,630	2198	113	2
3	71,351	1931	99	36'94	39'08	81,448	2085	91	3
4	69,469	1832	74	37'91	39'85	79,449	1993	62	4
5	67,673	1758	52	38'48	40'13	77,487	1931	50	5
6	65,941	1706	40	38'64	40'18	75,581	1881	40	6
7	64,254	1666	30	38'55	40'04	73,720	1841	30	7
8	62,603	1636	23	38'27	39'71	71,894	1810	23	8
9	60,979	1612	18	37'82	39'22	70,095	1787	18	9
10	59,375	1594	14	37'24	38'62	68,318	1769	14	10
11	57,788	1580	11	36'56	37'94	66,556	1754	12	11
12	56,213	1569	9	35'82	37'2	64,808	1742	12	12
13	54,649	1559	9	35'04	36'45	63,071	1730	12	13
14	53,094	1550	10	34'25	35'72	61,384	1717	13	14
15	51,550	1539	12	33'42	34'99	59,673	1704	15	15
16	50,016	1527	13	32'75	34'31	57,941	1688	17	16
17	48,496	1513	15	32'04	33'67	56,261	1671	19	17
18	46,990	1498	16	31'36	33'06	54,600	1651	20	18
19	45,500	1482	17	30'7	32'46	52,959	1631	22	19
20	44,026	1464	18	30'06	31'89	51,338	1609	22	20
21	42,572	1446	19	29'44	31'34	49,470	1587	23	21
22	41,135	1426	20	28'84	30'08	48,165	1563	24	22
23	39,719	1406	21	28'24	30'28	46,613	1539	24	23
24	38,323	1385	21	27'66	29'76	45,086	1515	24	24
25	36,948	1364	22	27'09	29'24	43,583	1490	24	25
26	35,595	1341	23	26'53	28'72	42,105	1466	24	26
27	34,265	1318	23	25'98	28'2	40,651	1441	24	27
28	32,959	1295	24	25'45	27'68	39,222	1417	24	28
29	31,676	1270	24	24'93	27'15	37,817	1393	24	29
30	30,418	1246	25	24'41	26'62	36,436	1369	23	30
31	29,184	1221	25	23'9	26'07	35,079	1345	23	31
32	27,976	1195	26	23'4	25'53	33,745	1322	24	32
33	26,794	1169	26	22'91	24'99	32,435	1298	24	33
34	25,637	1143	26	22'43	24'45	31,149	1274	24	34
35	24,508	1116	27	21'95	23'92	29,888	1249	25	35
36	23,405	1089	28	21'49	23'41	28,651	1224	26	36
37	22,330	1061	28	21'04	22'91	27,440	1197	27	37
38	21,283	1032	28	20'61	22'43	26,256	1170	27	38
39	20,265	1004	28	20'18	21'96	25,100	1143	27	39

MALES.					FEMALES.				
Age.	No. of the living at each and every greater age.	No. who ann. complete each year.	No. who ann. die in their next year.	Expec. of life at each age.	Expec. of life at each age.	No. of the living at each and every greater age.	No. who ann. complete each year.	No. who ann. die in their next year.	Age.
40	19,275	975	28	19'76	21'49	23,970	1115	27	40
41	18,314	947	28	19'33	21'02	22,869	1088	28	41
42	17,382	918	28	18'92	20'56	21,795	1060	27	42
43	16,477	890	28	18'51	20'09	20,748	1032	27	43
44	15,601	861	28	18'11	19'63	19,730	1005	27	44
45	14,754	833	27	17'71	19'16	18,738	978	26	45
46	13,935	805	27	17'3	18'68	17,774	951	25	46
47	13,143	778	26	16'88	18'18	16,835	926	24	47
48	12,378	752	25	16'45	17'66	15,921	901	24	48
49	11,638	727	25	16'0	17'13	15,032	877	24	49
50	10,924	702	25	15'56	16'6	14,166	853	24	50
51	10,234	677	24	15'12	16'08	13,325	829	25	51
52	9569	652	24	14'67	15'56	12,508	804	25	52
53	8929	628	24	14'22	15'05	11,717	778	26	53
54	8313	603	24	13'78	14'56	10,952	752	27	54
55	7722	579	25	13'34	14'1	10,214	724	29	55
56	7156	553	26	12'93	13'66	9504	695	30	56
57	6616	527	26	12'54	13'26	8823	665	31	57
58	6101	501	26	12'18	12'88	8173	634	31	58
59	5614	474	26	11'83	12'53	7555	603	31	59
60	5152	448	26	11'5	12'19	6967	571	31	60
61	4718	421	26	11'19	11'87	6412	540	31	61
62	4309	395	25	10'89	11'56	5887	509	30	62
63	3926	370	24	10'6	11'27	5394	478	29	63
64	3568	346	23	10'31	10'98	4930	449	28	64
65	3240	322	22	10'03	10'69	4495	420	27	65
66	2922	300	20	9'72	10'4	4088	393	26	66
67	2632	280	19	9'4	10'12	3709	366	25	67
68	2302	260	19	9'07	9'84	3355	341	24	68
69	2111	241	18	8'74	9'56	3026	316	23	69
70	1878	223	17	8'4	9'27	2721	293	22	70
71	1664	206	16	8'08	8'98	2439	271	21	71
72	1466	189	16	7'74	8'71	2178	250	20	72
73	1282	173	15	7'4	8'45	1938	229	20	73
74	1119	158	15	7'08	8'21	1719	209	19	74
75	969	142	14	6'8	7'97	1519	190	18	75
76	833	128	14	6'51	7'75	1337	172	16	76
77	712	114	13	6'25	7'52	1173	156	15	77
78	605	100	12	6'02	7'3	1025	140	14	78
79	511	88	12	5'81	7'08	892	126	13	79
80	429	76	11	5'65	6'87	773	112	12	80
81	359	65	9	5'52	6'66	666	100	11	81
82	298	55	8	5'38	6'47	572	88	10	82
83	247	47	7	5'26	6'23	489	78	9	83
84	204	39	6	5'16	5'97	415	69	8	84
85	167	33	5	5'0	5'68	349	61	7	85
86	136	28	4	4'79	5'4	292	54	7	86
87	110	24	4	4'6	5'13	241	47	6	87
88	88	20	3	4'41	4'87	197	40	5	88
89	70	16	3	4'25	4'56	160	35	5	89
90	55	13	2	4'08	4'24	127	30	4	90
91	43	11	2	3'9	3'9	99	25	4	91
92	33	9	1	3'66	3'53	76	21	3	92
93	25	7	1	3'29	3'13	56	18	3	93
94	18	6	1	3'0	2'77	40	14	3	94
95	12	5	1	2'5	2'26	27	11	2	95
96	8	4	1	2'0	1'88	17	9	2	96
97	4	3	1	1'5	1'41	9	6	2	97
98	2	2	1	1'0	1'0	4	4	2	98
99	5	1	1	5	5	1	2	2	99
100	...	...	...	...	...	...	...	...	100

DUBLIN WIDOWS' FUND.—This So. was founded in Dublin in 1837 under the title of the *County and City of Dublin Widows' Fund*. In 1861 it took its present title. It appears to have absorbed the bus. of the *Widows' General Annu. and Endowment So.*, founded in 1810. The So. is inrolled under the F. Sos. Acts. Its object is to provide a fund for the payment of annu. to the widows, children, or other nominees of deceased members. Females may become members and nominate their children or friends. Annu. may be secured to male relatives for life, if *idiots or cripples*, on payment of add. prems. We take the following regulations from the prosp.:

No member can take more than four annu., of which only two can be granted to one nominee; but persons having one or more annu. may subs. for half or quarter annu. in add., provided that all the annu. of such member do not exceed the amount of four whole annuities.

The prem. of all members must be paid for 5 years before their nominees can receive annu.; but the nominees of members who may die previous to the expiration of that time can be relieved from further payments, on giving notice in writing of their inability to continue them; in such case the amount unpaid, with 5 p.c. int. thereon, will be deducted from their annu. when payable.

All prems. must be paid in advance. The disparity money may be paid either in one sum, or by quarterly instalments.

Persons are not required to nominate at the time of becoming members, but may do so at any future period, without any extra charge (except for disparity of age), on satisfactory proof of health. Should they, being *bachelors or widowers*, marry after joining the So., and nominate *wives*, the annu. will then be claimable on the completion of five years from the period of their *admission*, instead of waiting, as in all other cases, till the expiration of five years from the date of nomination.

Members can, by the payment of a fee of £8 at the time of admission, secure the right of second nomination, in case of the death of the first nominee.

All members must produce certificates of good health on each nomination.

The annu. ceases to be payable to a widow on her *re-marrying*; but in case of her again becoming a widow, she may receive her annuity as before; other female nominees cease to be annuitants on marriage, but will be again placed on the fund should they become widows, without any payment in the interim.

The rates of subs. of members are as follows:

Age under 20 years,	£ s. d.	Age under 34 years,	£ s. d.	Age under 48 years,	£ s. d.
" 21 "	4 0 0	" 35 "	5 1 0	" 49 "	7 12 0
" 22 "	4 1 6	" 36 "	5 2 6	" 50 "	7 16 0
" 23 "	4 3 0	" 37 "	5 4 0	" 51 "	8 0 0
" 24 "	4 4 6	" 38 "	5 8 0	" 52 "	8 4 0
" 25 "	4 6 0	" 39 "	5 12 0	" 53 "	8 8 0
" 26 "	4 7 6	" 40 "	5 16 0	" 54 "	8 12 0
" 27 "	4 9 0	" 41 "	6 0 0	" 55 "	8 16 0
" 28 "	4 10 6	" 42 "	6 4 0	" 56 "	9 0 0
" 29 "	4 12 0	" 43 "	6 8 0	" 57 "	9 4 0
" 30 "	4 13 6	" 44 "	6 12 0	" 58 "	9 8 0
" 31 "	4 15 0	" 45 "	6 16 0	" 59 "	10 0 0
" 32 "	4 16 6	" 46 "	7 0 0	" 60 "	10 4 0
" 33 "	4 18 0	" 47 "	7 4 0		
" 34 "	4 19 6	" 48 "	7 8 0		

The charge for disparity of ages, *i.e.* difference between age of member and nominee, is as follows—payable at the time of nomination only—for each annuity:

Years of difference.	Members under 21.	21 and under 25.	25 and under 30.	30 and under 35.	35 and under 40.	40 and under 45.	45 and under 50.	50 and under 55.	55 and under 60.
1	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
2	1 13 0	1 16 0	1 19 0	2 5 0	2 11 0	3 0 0	3 7 6	3 10 6	3 7 6
3	3 6 0	3 10 6	3 19 6	4 11 6	5 3 0	6 0 0	6 16 6	7 4 0	6 19 6
4	4 19 0	5 8 0	6 0 0	6 18 0	7 16 0	9 1 6	10 8 6	11 2 0	10 16 0
5	6 12 0	7 4 0	8 0 0	9 4 6	10 10 0	12 3 0	14 2 0	15 1 6	15 0 0
6	8 5 0	9 0 0	9 19 6	11 9 6	13 4 0	15 6 0	17 17 0	19 7 0	19 5 6
7	9 19 6	10 19 0	12 3 0	13 16 0	15 18 0	18 7 6	21 10 6	23 14 0	23 17 0
8	11 14 0	12 16 6	14 5 0	16 2 6	18 12 0	21 10 6	25 4 0	28 2 6	28 11 6
9	13 8 6	14 14 0	16 7 0	18 9 0	21 6 0	24 18 0	28 16 0	32 12 6	33 10 6
10	15 3 0	16 11 6	18 10 6	20 17 0	24 0 0	27 16 6	32 9 6	37 8 6	38 11 0
10	16 17 6	18 9 0	20 14 0	23 2 0	26 12 6	30 19 6	36 1 6	41 12 6	43 16 0

The charge for greater disparity may be known by application at the office.

The bus. of the So. appears to be limited. Its income in 1872, including int. on investments, was £2400. The amount of annu. paid was £2145, to 87 annuitants. The accumulated fund of the So. amounted at that date to £32,780. Since 1843 the fund is valued every 5 years, and the annu. for the succeeding quinquennium is fixed as the actuaries then consulted may advise.

In 1847 the late Mr. Robert Christie valued the fund at the request of the management. He recommended the fixing the annu. at £20. There were then 255 members.

In 1858 the So. was paying an annu. of £30. Mr. Christie entered upon a voluntary valuation, and pronounced that on this annu. the funds of the So. would be deficient nearly £15,000. The Sec. of the So. replied that the Act. who valued in 1853 recommended the payment then being made. Mr. Christie replied, contending that the £30 annu. was too much.

The Directors, in their rep. to end of 1872, state the So. to be in a prosperous condition. Mr. W. J. Stokes is Sec.

DUBROCA, M., for some years Ed. of the *Revue des Assurances*, pub. in Paris. On the occasion of a project being put forward, and entertained by the Government of France, to

undertake the entire Ins. bus. of that country, the offices combined, and selected M. Dubroca to represent their interests. His zeal, experience, and talents, combined with the determination of the offices themselves, defeated the design.

M. Dubroca has compiled statistics of the damage done to crops in France by hail; and also the per-centages of maritime losses: these latter in his *Manuel de l'Assureur*. They will be spoken of in more detail under their proper heads.

M. Dubroca was present at the Convention of Actuaries held in Lond. in 1851, "having come with other distinguished managers of French cos. expressly to do honour to the occasion; so that both the literature and the practice of assu. might be considered as worthily represented."—*Vide Assu. Mag.* vol. i. p. 365.

DUCHENNES DISEASE.—A nervous affection indicated by progressive abolition of the coordination of movement and apparent paralysis, contrasting with the integrity of the muscular power.—*Hoblyn*.

DUCK, DR. ARTHUR.—An eminent civil lawyer, and "Master of the Requests," pub. in 1653 a learned treatise: *De Usu et Auctoritate Juris Civilis Romanorum in dominiis principum Christianorum*, which passed through several eds. at home and abroad. He states therein authoritatively that many parts of the maritime law of England were borrowed from the *Consolato del Mare*.

DUDGEON, HENRY JAMES, Dublin, Man. in Ireland of the *County Fire and Provident Life*, in representing which he succeeded his father, Mr. James Dudgeon, who founded the agency in 1833. He has for many years transacted a very large business for these Cos. His energy in their cause has indeed on several occasions placed him in conflict with other offices, as for instance the *Royal Exchange* in 1863; the *Scottish Widows' Fund* in 1867; and the *Royal* in the same year. Mr. Dudgeon is well known in the Ins. world for his fearless exposure of what he considers to be the errors and abuses of ins. asso.; and he deserves credit for having exposed the rottenness of the *European* for several years before the fact was generally recognized.

DUDMAN, WILLIAM, was Sec. of Life department of *Aegis Fire and Dilapidation and English and Cambrian Life Ins. Co.* during its short career 1825-7.

DUE.—Anything owed; that which one contracts to pay or perform to another; that which law or justice requires to be paid or done. A debt is said to be *due* the instant that it has existence as a debt; it may be *payable* at a future time.

DUEL; DUELLING.—In the ancient law of Great Britain a legal combat between persons in a doubtful case for the trial of the truth; but long since disused. In modern times a duel is a combat with weapons between two persons upon some quarrel precedent; wherein, if one of them is killed, the other and the seconds are guilty of murder, whether the seconds fight or not. An unpremeditated sudden fight is a rencontre.

Duelling took its rise from the judicial combats of the Celtic nations. The first duel recorded in England took place between William Count of Eu and Godfrey Baynard in 1096. The fight with small swords was introduced into England in the reign of Elizabeth, 1587. By proclamation of Charles II. in 1679, it was ordained that no person should be pardoned who killed another in a duel. Duelling was checked in the army in 1792. In 1845 a So. "for the discouragement of duelling" was formed. The sending a challenge with a view to induce a person to fight a duel is a punishable offence.

In France duelling has been more prevalent than in England. Duelling in civil matters was forbidden in that country as early as 1305. A calculation was made in 1607 that since the accession of Henry IV. no less than 4000 French gentlemen had lost their lives in such conflicts.

Duelling in England was carried to its greatest possible excess in the reigns of James I. and Charles I. and II. In the reign of Charles II. the "seconds" always fought as well as their principals; and as they were chosen for their courage and adroitness, their combats were generally the most fatal. Sir J. Barrington records, as within his own recollection, 227 official and memorable duels. Mr. Hone records that out of 172 duels fought during 60 years, terminating in the present century, 60 persons were killed; 96 were wounded: 48 desperately, and 48 slightly; and 188 escaped unhurt. In 3 of these duels neither of the combatants survived, and 18 of the survivors suffered the sentence of the law.

The practice of duelling led to the necessity of life ins. asso. protecting themselves from payment of claims in consequence of the death of persons caused by such means. It would appear that such a provision commenced with the earliest known ins. and annuity contracts. In 1699 the *Mercers Co.* entered upon a scheme of granting annuities to the widows of subscribers; and one of the conditions was:

In case it shall happen that any man who has subs. shall voluntarily make away with himself, or by any act of his occasion his own death, *either by duelling*, or committing any crime whereby he shall be sentenced and put to death by justice: in any or either of those cases his widow is to receive no annuity, but upon delivering up the Co.'s bond to have the subs. money paid to her.

It is curious to notice the humane practice of returning to the widow the subs. paid, prevailing at this early period. In some life offices the forfeiture, in case of death by duelling, has been made absolute; but in most an option has been reserved to the directors to pay to the family or other interested persons the value of the pol. on the day preceding the fatal occurrence—treating it as a surrender. In process of time, however, when life pol. came to be regarded as an element of security in regard to pecuniary dealings, the

element of "certainty"—so necessary an element in all ins. contracts—had to be incorporated, even in regard to such an exceptional incident as death by duelling: hence we find it embodied in such a condition as the following, which we take from a pol. in the *Law Life* office:

Assu. made by persons on their own lives who shall die by *duelling*, or by their own hands, or by the hands of justice, will become void as far as respects such persons; but shall remain in force as far as any other person or persons shall then have a *bond fide* interest therein, acquired by assignment, or by legal or equitable lien, upon due proof of the extent of such interest being made to the directors. And if any person assured upon his own life, and who shall have been so assured for at least 5 years, shall die by his own hands, and not *felo de se*, the directors shall be at liberty, if they shall think proper, to pay for the benefit of his family any sum not exceeding what the So. would have paid for the purchase of his interest in the pol. if it had been surrendered to the So. on the day previous to his decease; provided that the interest in such assu. shall be in the assured, or in any trustee or trustees for him or for his wife or children at the time of his decease.

The conditions of various ins. asso. differ as to the phraseology employed; but the effect of all which have come under our notice is the same.

Mr. Bunyon suggests that the words "by duelling" are not so precise but that disputes may arise upon them. It has been suggested, he says, that the question as to the felonious intent might arise when the deceased, although killed in a duel, had fired his pistol in the air, and never contemplated shooting his opponent; but the reply to this might well be, that the office had stipulated that he should not expose himself to such a risk; or, again, that the duel might be in the course of war, in which it might be fatal, but not felonious; but this case would seem to be covered by the condition of military service.

—*Law of Life Assu.* 1868.

It is a remarkable fact that we do not find a single case before the Law Courts of either this country or the U.S. on this question of duelling. It is perhaps the only condition in life pol. which can claim this distinction.

DUER, JOHN, LL.D., Counsellor-at-Law, New York, pub. in N.Y. in 1844, *A Lecture on the Law of Representations in Marine Ins., with Notes and Illustrations; and a Preliminary Lecture on the question whether Marine Ins. was known to the Ancients.* [MARINE INS., HIST. OF.]

He also pub. at New York, in 1845-6, *The Law and Practice of Marine Ins. deduced from a critical examination of the adjudged cases, the nature and analogies of the subject, and the general usage of Commercial Nations.* The author appears to have exhausted the whole learning of the subject, from a legal point of view.

DUERR, GEORGE, was Sec. of *Candidate L.* during its brief career.

DUES.—Certain payments, as harbour dues, tonnage dues, etc.

DUMFRIES.—In 1770 there was pub. in Edin. *Account of a very Infectious Distemper at Dumfries, in August, 1769.*

DUMMIES.—This term is applied in the U.S. to what in Europe are called "Lifts," viz. appliances for raising goods or persons to the upper floors of buildings, warehouses, etc. [LIFTS.]

DUNCALF, GEO. P., Macclesfield, was agent for many years for *Brit. Empire Mut. Life*, for *Liverpool and London Fire*, and for *Accident Ins. Co.*, transacting a considerable bus.

DUNCAN, ALEXANDER, Man. of *Ins. Co. of Scotland* since 1871; was previously connected with the *Northern*, and acted as Sec. of that Co.'s Dundee branch for about 4 years.

DUNCAN, DR. J. MATTHEWS, M.D., Edinburgh, has pub. the following works falling within our scope. In 1866, *Fecundity, Fertility, Sterility, and Allied Topics*, 2nd ed. 1871. In 1870 a work, *Mort. of Childbed and Maternity Hospitals.* [FECUNDITY.] [INFANT MORT.] [STERILITY.]

DUNCAN, JAMES J., late Man. of the *West of Scotland L.*, pub. in 1829, *Tables of the Prob. and Expec. of Male and Female Life in Glasgow; and of the Value of Annu. on Single Lives at all Ages, distinguishing the sexes, at the several rates of int. of 3, 4, 5, and 6 p.c.; deduced from the Glasgow Pop. and Mort. Bills, on an average of 6 years from 1821 to 1827.* [FEMALE LIFE.] [GLASGOW, MORT. T. FOR.]

DUNCAN, JOHN, F.I.A., Assistant Sec. in Lond. office of *Edinburgh Life* since 1868. He had previously held an appointment in the Lond. office of the *Scottish National*, which he entered in 1862.

DUNDEE.—A maritime town in Scotland, and an important seat of linen manufacture. Pop. in 1861, 90,425; 1871, 118,974. Some years since the borough obtained an unenviable notoriety in consequence of the frequency and magnitude of its jute fires. The mort. returns of this town have long been very unsatisfactory, but they now show signs of improvement.

In Dundee on an average of 7 years before 1839 the mort. from fever was 10.9 p.c. of the entire mort.; while in 1836 it reached 15 p.c. of the whole. In the last-named year the entire mort. of the city was 27.4 p. 1000 of its pop.; while in 1837 it reached 28.8 p. 1000.

In 1845 Mr. F. G. P. Neison read before the Statistical So. a paper, *Contributions to Vital Statistics*, etc., wherein certain details are given regarding the rate of mort., etc., in Dundee. In the 3rd ed. of a work under the same title, by the same writer, pub. in 1857, there is given a T. of Mort. for Dundee. This we speak of under a separate heading. [DUNDEE, MORT. T. FOR.]

The Reports of the Scottish Reg.-Gen. furnish much add. information regarding the mort. of this town.

In Dundee the mort. from the smallpox epidemic, 1871, was very severe, being at the rate of $5\frac{1}{2}$ p. 1000, or about $2\frac{1}{2}$ times as fatal as in Lond.

DUNDEE FIRE INS. ASSO.—Founded in Dundee towards the close of the last or early in the present century. The duty returned by the Co. in 1805 was £1521 3s. 3d. It appears to have passed out of existence about 1826.

DUNDEE MARINE INS. CO.—Founded in Dundee in 1836, and continued in bus. until 1848, when it was dissolved.

DUNDEE, MORT. T. FOR.—Mr. Neison, in the course of investigations into the mort. of Glasgow, in relation to other towns in Scotland, had his attention especially drawn to Dundee; and came to the conclusion that the facts before him were “of sufficient importance to warrant the calculation of Mort. T. for the town of Dundee.” He fell back upon the “Mort. Bills of that town for the 10 years 1835-44, and the Census of the pop. in 1841,” and deduced T. for male and female lives separately; but we can only find space for the following abstract of these T., *Contributions to Vital Statistics*, 3rd ed. 1857.

MORT. T. FOR TOWN OF DUNDEE.—Neison, 1857.

MALES.				FEMALES.			
Age.	Living.	Dying.	Expectation.	Expectation.	Living.	Dying.	Age.
10	100,000	791	43.29	45.87	100,000	792	10
11	99,209	696	42.63	45.23	99,208	712	11
12	98,513	647	41.93	44.55	98,496	676	12
13	97,866	602	41.21	43.86	97,820	643	13
14	97,264	582	40.46	43.15	97,177	605	14
15	96,682	583	39.70	42.41	96,572	584	15
16	96,099	601	38.94	41.67	95,988	575	16
17	95,498	630	38.18	40.92	95,413	573	17
18	94,868	664	37.43	40.16	94,840	573	18
19	94,204	698	36.69	39.40	94,267	598	19
20	93,506	731	35.96	38.65	93,669	623	20
21	92,775	763	35.24	37.90	93,046	647	21
22	92,012	794	34.53	37.17	92,399	671	22
23	91,218	825	33.82	36.43	91,728	694	23
24	90,393	854	33.13	35.71	91,034	717	24
25	89,539	882	32.44	34.99	90,317	739	25
26	88,657	909	31.76	34.27	89,587	762	26
27	87,748	935	31.08	33.56	88,816	785	27
28	86,813	960	30.81	32.82	88,031	808	28
29	85,853	983	29.74	32.16	87,223	830	29
30	84,870	1005	29.08	31.46	86,393	853	30
31	83,865	1027	28.42	30.77	85,540	874	31
32	82,838	1047	27.77	30.08	84,666	894	32
33	81,791	1066	27.12	29.40	83,772	914	33
34	80,725	1084	26.47	28.72	82,858	933	34
35	79,641	1110	25.82	28.04	81,925	955	35
36	78,531	1142	25.18	27.36	80,970	982	36
37	77,389	1181	24.55	26.69	79,988	1012	37
38	76,208	1225	23.92	26.03	78,976	1045	38
39	74,983	1274	23.30	25.37	77,931	1082	39
40	73,709	1321	22.70	24.72	76,849	1116	40
41	72,388	1364	22.10	24.08	75,733	1149	41
42	71,024	1404	21.52	23.44	74,584	1180	42
43	69,620	1440	20.94	22.81	73,404	1208	43
44	68,180	1474	20.37	22.18	72,196	1235	44
45	66,706	1503	19.81	21.56	70,961	1266	45
46	65,203	1530	19.26	20.94	69,695	1302	46
47	63,673	1552	18.71	20.33	68,393	1340	47
48	62,121	1572	18.16	19.73	67,053	1382	48
49	60,549	1592	17.62	19.22	65,671	1426	49
50	58,957	1601	17.08	18.55	64,245	1466	50
51	57,356	1611	16.55	17.97	62,779	1502	51
52	55,745	1617	16.01	17.40	61,277	1534	52
53	54,128	1620	15.47	16.83	59,743	1562	53
54	52,508	1620	14.94	16.27	58,181	1585	54
55	50,888	1637	14.40	15.71	56,596	1614	55
56	49,251	1669	13.86	15.16	54,982	1648	56

MALES.				FEMALES.			
Age.	Living.	Dying.	Expectation.	Expectation.	Living.	Dying.	Age.
57	47,582	1714	13'33	14'61	53,334	1685	57
58	45,868	1767	12'81	14'07	51,049	1724	58
59	44,101	1828	12'30	13'54	49,925	1765	59
60	42,273	1875	11'81	13'02	48,160	1797	60
61	40,398	1909	11'34	12'51	46,363	1821	61
62	38,489	1931	10'87	12'00	44,542	1837	62
63	36,558	1941	10'42	11'49	42,705	1845	63
64	34,617	1939	9'98	10'99	40,860	1846	64
65	32,687	1942	9'54	10'49	39,014	1869	65
66	30,736	1946	9'11	9'99	37,145	1911	66
67	28,790	1950	8'69	9'50	35,234	1964	67
68	26,840	1948	8'29	9'04	33,270	2024	68
69	24,892	1941	7'90	8'59	31,246	2085	69
70	22,951	1914	7'53	8'17	29,161	2117	70
71	21,037	1867	7'17	7'77	27,044	2122	71
72	19,170	1005	6'82	7'39	24,922	2101	72
73	17,365	1728	6'47	7'02	22,821	2058	73
74	15,637	1641	6'15	6'67	20,763	1994	74
75	13,996	1565	5'80	6'32	18,769	1928	75
76	12,431	1495	5'46	5'99	16,841	1858	76
77	10,936	1424	5'14	5'67	14,983	1780	77
78	9512	1347	4'84	5'37	13,203	1692	78
79	8165	1262	4'55	5'09	11,511	1594	79
80	6903	1162	4'30	4'83	9917	1475	80
81	5741	1036	4'07	4'58	8442	1343	81
82	4705	911	3'85	4'36	7099	1202	82
83	3794	784	3'66	4'14	5897	1059	83
84	3010	661	3'48	3'94	4838	919	84
85	2349	545	3'32	3'75	3919	787	85
86	1804	441	3'18	3'57	3132	664	86
87	1363	349	3'04	3'39	2468	552	87
88	1014	271	2'92	3'23	1916	452	88
89	743	207	2'81	3'07	1464	364	89
90	536	155	2'70	2'92	1100	287	90
91	381	115	2'59	2'78	813	223	91
92	266	82	2'50	2'64	590	169	92
93	184	59	2'40	2'51	421	126	93
94	125	41	2'30	2'37	295	92	94
95	84	28	2'17	2'21	203	66	95
96	56	19	2'01	2'04	137	46	96
97	37	13	1'79	1'82	91	32	97
98	24	8	1'50	1'55	59	21	98
99	16	8	1'00	1'13	38	14	99
100	8	8	'50	'50	24	24	100

Mr. Neison says regarding this T.:

An inspection . . . will show that in Dundee the equation [EQUATION] of male life for age 10 takes place at age 55-6, which is 7 years beyond the results obtained . . . for the whole pop. of Glasgow, and even 2 years higher than the equation of life for the members of F. Sos. in the average of Scotch cities. This result will no doubt be unexpected by some inquirers, as Dundee has usually been held up as the type of unhealthy cities; but the present results show the necessity of extended obs. before drawing any conclusions.

An abstract is then given of the comparative value of male life in the entire pop. of Glasgow, Liverpool, and Dundee, with the following result:

The value of life in Dundee will thus be seen to stand higher than in either of the other cities. If a complete system of regis. existed in Scotland [since adopted], accurate means would be afforded of carrying out a satisfactory inquiry as to the relative value of life in different districts; but so far as the more imperfect systems of local regis. will admit of judging, it does not appear that the duration of life in the large towns of Scotland should be regarded as much below that of the cities of Eng.

DUNDEE MUTUAL MARINE INS. CO.—Founded in Dundee in 1848, and we believe is still in existence. Mr. John M. Lindsay was for some time its Sec.

DUNDEE SEA MARINE.—Founded in Dundee in 1821. It carried on bus. down to 1850, and in 1851 passed out of existence. Mr. Archibald Crichton was its Man.

DUNDEE UNION [MARINE INS.] ASSO.—An asso. under this title was existing in 1851, when certain important alterations were proposed in its rules, viz. the classifying of vessels in the order of first, second, and third, with corresponding prems. for each class. The proposal met with considerable opposition.

DUNGENESS AND LONDON.—For statistics of maritime casualties between, see MARITIME RISKS, STATISTICS OF.

DUNGLISON, ROBLEY, M.D., Philadelphia, has pub. many important works on medical subjects. A few of them only come within our range, viz.:—1835. *On the Influence of Atmosphere and Locality, Change of Air, Seasons, Food, Sleep, etc. on Human Health, Constituting Elements of Hygiene.* 1844. *Human Health or Elements of Hygiene.*

DUNLOP, ROBERT, was Sec. of *Glasgow Annu. So.* in 1843.

DUNN, THOMAS, Bank of Scotland, Glasgow, pub. 1828, *Tables of Simple Int. computed decimally, by which is obtained at one inspection the int. of any sum from £1 to £1000, and with almost equal facility from £1000 to £10,000, for any number of days not exceeding 400, at 5 p.c. p.a.; but easily reducible to any other rate; accompanied with examples of their application to Foreign Moneys, to calculations of int. on accounts current, and the equation of payments; also a Supplemental T. by the aid of which the int. of all possible sums may be obtained with perfect accuracy.* Price 25 shillings.

DUNNAGE [or Chocking].—The timber packing inserted between the sides and bottom of a ship and the cargo, to prevent too great rigidity, or to preserve the cargo from the effects of leakage.—*Ins. Agent.*

DUPIN, M., pub. some years since *Force Militaire de la Grande Bretagne*, a work which has drawn considerable attention; and which we shall speak of under MILITARY OPERATIONS, MORT. FROM; and WARFARE.

DUPLICATE POLICIES (Life).—In preparing Mort. [Life] T. based upon the experience of insured lives, it is necessary to reject duplicate pol. upon the same lives—for otherwise the death of any particular person insured will count as many times as there are separate pol. on his life. Mr. Charles Jellicoe, in his paper on the rate of mort. experienced by the *Eagle Life*, read before the Inst. of Act. 1854, says hereon:

Notwithstanding what has been said to the contrary, there can be no doubt that the omission of this process [of elimination], and the enumeration of pol. in such investigations as if they were persons, is likely to lead to conclusions more or less erroneous. In the case under consideration there is no doubt that it would have done so.

The subject will be further considered under MORT. T., CONSTRUCTION OF. [DOUBLE INS. (Fire).] [ECONOMIC LIFE, MORT. EXPERIENCE OF.]

DUPRE DE SAINT MAUR, M. NICHOLAS FRANCIS, “Maitre des Comptes, Paris,” born 1695, and died at Paris 1775. He compiled the *Tables de Mortalite* inserted in Buffon’s *Histoire Naturelle de l’Homme*, pub. 1749, and from which the Count de Buffon constructed the T. of Expectations, which we have already given under his name. [FRANCE.] [PARIS.]

DURAND, H. S., Chicago, Special Agent and Adjuster for the *Home F.* of N.Y. since 1854. He also acted in a similar capacity for the *Old Manhattan F.* Few men have had a larger experience, and this was brought largely into play in the adjustments which followed the Chicago fire, 1871.

DURATION OF HUMAN LIFE.—This subject will be treated of in its varied aspects under LIFE, HUMAN, and under LONGEVITY. The question of the supposed increase in the duration of human life will be investigated under one of those heads.

DURATION OF INSURED LIVES.—It would be interesting to note the average duration of ins. lives among the various ins. asso. It would vary of course in relation to the age of admission—that is, the offices which from any cause obtained younger lives than the average of offices should have them longer on their books. The skill in selection shown by the several offices would here come into play. We shall hope under another head to bring together some facts on this subject. In the *Amicable So.* for several years before 1775 the average duration of lives was 16 years, and here there was, at that date, no medical selection. [INSURED LIVES, DURATION OF.]

DURATION OF LIFE POLICIES.—This involves considerations altogether different from the question of the duration of Ins. Lives. We shall speak of it incidentally under the following heads: FORFEITURE OF POL.; LAPSING OF POL.; SURRENDER OF POL.; and generally under LIFE POL., DURATION OF.

DURATION OF RISK.—The question of Duration of Risk has been considered incidentally under several heads, as CANCELMENT; COMMENCEMENT OF RISK; DAYS OF GRACE. But other considerations are involved, varying with the varying nature of ins. contracts as applied to different departments of the bus. Some of these will be spoken of under FORFEITURE; NOVATION OF CONTRACT; OPEN FIRE POL.; SHIP OR SHIPS; TERMINATION OF RISK. But there are one or two points requiring to be noticed here.

Marine Ins.—By the 35 Geo. III. c. 63, s. 12 (1795), no pol. of marine ins. was to be made for any time exceeding 12 months; and every policy which should be made for any time exceeding 12 months should be null and void to all intents and purposes. A similar provision has been re-enacted by 30 & 31 Vict. c. 23, s. 8 (1867). These are simply fiscal restrictions made in the interest of the Stamp Laws. They do not reach the case of voyage pol.—which of course are made for such period as the voyage shall last.

Fire Ins.—In the case of *Kunze v. American Exchange Fire Ins. Co.*, 1864, it was held, that a pol. of ins. on merchandize continues in force so long as the goods remain in the building specified therein—during the time the pol. has to run—unless the contract is modified by the assent of both parties. Insurers who are bound by the terms of the pol.,

for a loss occurring during the time covered by it, if they claim any variation of their original responsibility by a new agreement, must establish it by clear and indubitable evidence.

Regarding the general practice in the U.S., we find in *Griswold*, 1872, the following: The duration of liability in Fire pol. should always be limited to some specified period of time, as 30 days, six months, five years, as the case may be. In warehouse pol., where goods are received and discharged constantly, it is customary to make the entries as to the subject, the amount covered, and rate of prem., and the date of the commencement of risk; and leave the "time undecleared," until such time as the insured goods shall be removed or sold, when the prem. is estimated for the time "at risk," and so entered.

DURHAM AND NORTHUMBERLAND F., L., M., AND GENERAL PROVIDENT ASSO.—This Co. was founded in Sunderland in 1854. It transacted a limited bus. only, and in 1856 it was trans. to the *Bank of Lond.* and *National Provincial Ins. Co.* On the amalg. it was agreed that the *Durham*, etc., Co. should trans. all its bus. to the *B. of Lond.*, etc., Co., and in consideration thereof should receive 600 shares in the last-named Co. The *B. of Lond.* Co. sent transfers of 600 shares to the directors of the *Durham*, etc., Co., but they never accepted the transfers. After certain negotiations with reference to these transfers, the *B. of Lond.* Co. became amalg. with the *Albert Co.*, and it was arranged that the *Albert Co.* should give to the *Durham Co.* 200 *Albert* shares in lieu of the 600 *B. of Lond.* shares, to which the *Durham Co.* was entitled. The *B. of Lond.* had no regular share register, but in a book called the "Share Ledger," belonging to that Co., the *Durham Co.* was entered as the holder of 600 shares.

The deed of settlement of the *Durham Co.* contained no power of amalg., and no provision for the sale or trans. of the bus., and no power of holding shares in another co.

The affairs of the *Durham* and *Northumberland Co.* were wound up in 1865.

In 1869 the *Albert Co.* was ordered to be wound up; and in 1870, as a consequence, the *Bank of Lond.*, etc., was ordered to be wound up. It was therefore sought to make the *Durham*, etc., Co., a contributory to the *Bank of Lond.* Co. in respect of the 600 shares before named. The *Durham*, etc., Co., applied to Lord Cairns, the Arbitrator, to have its name removed from the *Bank of Lond.*, etc., regis. The application was granted. His Lordship said: "It seems to me clear on the evidence that it never was the intention of any person whatever at any time that the *Durham Co.* should be shareholders in or contributory to the *Bank of Lond.* Co. There would have been no power to make them shareholders in a foreign co."

DUST.—Dust is not only objectionable as being a species of dirt; but it has other bad and dangerous qualities. Persons working in or otherwise becoming exposed to continued dust, especially when this dust contains metallic particles, are supposed to be peculiarly liable to lung diseases. If the germ theory of disease be recognized, then dust affords a special lodgment for the destructive particles. Again, there can be no doubt that dust has frequently led to the destruction of property by fire. The dust arising from the process of grinding corn—still more from rice—is peculiarly inflammable: igniting in such a form as to resemble the effects of explosion. A recent case of ignition from dust has occurred at Millville, Mass., in a woollen mill (Feb. 1874). The workmen were lighting the gas in the carding room; the dust and fibre hanging to the gas pipe ignited, and in an instant the flames had spread entirely over the room, and the building was speedily destroyed. While cleanliness is generally admitted to be next to godliness, uncleanness is clearly satanic in some of its influences. [EXPLOSIONS.]

DUSTMEN, HEALTH AND MORT. OF.—See OCCUPATIONS, INFLUENCE OF.

DUTCH MORT. TABLE.—See KERSEBOOM'S MORT. T.

DUTIES.—Charges levied upon imported goods and merchandise; and collected by custom-house officers. The tariffs of different countries vary greatly from each other, not only in the articles liable to duty, but in the rates charged—designated the "tariff."

In the case of *Wolfe v. Howard Ins. Co.*, before the N.Y. Superior Court, 1847, and affirmed on appeal, it was held, that goods in the custom-house are to be estimated at their market value, without reference to the fact that the duties may or may not have been paid.

DUTIES, INS. TO EVADE PAYMENT OF.—Towards the end of the 17th century, perhaps earlier, a practice arose in Gt. Britain, of insuring the delivery of goods and merchandise without payment of duties—a species of indemnity to those trading in smuggling. Hence there came to be passed in 1692, the 4 Wm. & Mary, c. 15—*An Act for continuing certain acts therein mentioned and for charging several Joynt Stocks*—containing the following special clauses:

And whereas it is found by experience that great quantities of goods are daily imported from foreign parts in a fraudulent and clandestine manner, without paying the customs and duties due and payable to their majesties, and the same hath been of late much increased and promoted by ill men, who, notwithstanding the laws already made, do undertake as insurers or otherwise to deliver such goods so clandestinely imported at their charge and hazard into the houses, warehouses, or possession of the owners thereof. For the preventing so great a mischief, be it enacted by the authority aforesaid, That all and every person or persons whatsoever who by way of ins. or otherwise shall undertake or agree to deliver any goods or merchandizes whatsoever to be imported from parts beyond the seas at any port or place within this Kingdom of England, Dominion of Wales, or Town of Berwick upon Tweed, without paying the customs and duties that shall be due and payable for the same at such importation, or any prohibited goods whatsoever, or in pursuance of such ins., undertaking, or agreement, shall deliver or cause or procure to be delivered any prohibited goods, or shall deliver or cause or procure to be delivered any goods or merchandizes whatsoever, without paying such duties and customs as

aforesaid, knowing thereof, and all and every their aiders, abettors, and assistants, shall for every such offence forfeit and lose the sum of £500 over and above all other forfeitures and penalties to which they are liable by any other act already in force.

And be it further enacted by the authority aforesaid, That all and every person and persons whatsoever who shall agree to pay any sum or sums of money for the insuring or conveying any goods or merchandizes that shall be so imported without paying the customs and duties due and payable at the importation thereof, or of any prohibited goods whatsoever, or shall receive or take such prohibited goods into his house or warehouse or other place onland, or such other goods, before such customs and duties are paid, knowing thereof, shall [alsoe] for every such offence forfeit and lose the like sum of £500, the one half of the said forfeitures to be to their majesties, and the other half to the informer or such person or persons as shall sue for the same.

And be it further enacted by the authority aforesaid, That if the insurer, conveyor, or manager of such fraud be the discoverer of the same, he shall not only keep and enjoy the ins. money or reward given him, and be discharged of the penalties to which he is liable by reason of such offence, but shall also have to his own use one half of the forfeitures hereby imposed upon the party or parties making such ins. or agreement, or receiving the goods as aforesaid. And in case no discovery shall be made by the insurer, conveyor, or manager as aforesaid, and the party or parties insured or concerned in such agreement shall make discovery thereof, he shall recover and receive back such ins. money or prem. as he hath paid upon such ins. or agreement, and shall have to his own use one moiety of the forfeitures imposed upon such insurer, conveyor, or manager as aforesaid, and shall also be discharged of the forfeitures hereby imposed upon him or them.

The 8 & 9 Wm. III. c. 36 (1697)—*An Act for the further encouragement of the Manufacture of Lustrings and Alamodes within this Realm, and for the better preventing the Importation of the same*—recites :

And whereas provision hath been made by divers laws for the encouragement of the said manufacture, and for preventing the importation of such foreign silks without paying the duties charged thereon, which have been frequently eluded by the subtil practices of evil disposed persons: For remedy whereof, and for the further encouragement of the said manufacture, be it enacted, etc., That every person or persons who shall import any foreign alamodes or lustrings, from parts beyond the seas, into any port or place within the kingdom of England, etc., without paying the rates, customs, impositions, and duties that shall be due and payable for the same at such importation, or shall import any alamodes or lustrings prohibited by law to be imported, or shall by way of ins. or otherwise undertake or agree to deliver, or in pursuance of any undertaking, agreement, or ins. shall deliver, or cause to be delivered, any such goods or merchandize, and every person or persons who shall agree to pay any sum or sums of money, prem. or reward for insuring or conveying any such goods or merchandize, or shall knowingly receive or take the same into his, her, or their house, shop, or warehouse, custody or possession, such person or persons shall and may be prosecuted, etc.

The first of these Acts was repealed as recently as 1825 by 6 Geo. IV. c. 105, s. 30; the second by Stat. Law Revision Act, 1867.

DUTY.—A tax, an impost, or imposition; also an obligation.

DUTY ON FIRE INS.—See FIRE INS., DUTY ON.

DUVILLARD, MONS. E. E., Geneva, pub. in Paris in 1787, *Recherches sur les Rentes, les Emprunts, et les Remboursements*; and in 1806: *Analyse et Tableaux de l'Influence de la Petite Vérole sur la mortalité à chaque âge, et de celle qu'un préservatif tel que la vaccine peut avoir sur la population et la longévité*. In this last [which the author says was presented to the Institute "an. V. of the Republic"] was contained a T. of Mort. for France before the Revolution of 1792. This we speak of under a separate heading. Milne says of Duvillard:

He appears to have paid more attention to the subject than any other writer on the Continent, except M. Deparcieux, and these are my reasons for inserting it [the T.] here. That T. would have been of greater authority if he had given us satisfactory information respecting its construction, and the obs. it depends upon.

DUVILLARD'S (FRENCH) MORTALITY TABLE.—This T. purports to show the mort. of France before the Revolution of 1792. The data upon which it is based were supplied from Government sources; and the compiler believed it to represent very exactly the law of mort. in France at the period to which it applied. This view has, however, been questioned by some English writers. The author was mainly engaged in tracing the mortality occasioned in France by the ravages of *smallpox*; and the T. first appeared in his work upon that subject in 1806.

The T. purports to be founded on 101,542 deaths at different ages in different parts of France amongst a pop. of 2,920,672. It gives the mean duration of life at 28 years and 9 months (28·76). It embodied an improvement in its columnar arrangement, which has since been the subject of much discussion. [COLUMNAR METHOD.]

We take the following T. from Milne; and it is necessary therefore to accompany it with the following explanation of the principle upon which he curtailed its original proportions:

He [Duvillard] has assumed unit for the number of the born, consequently the numbers completing the several years of age, and the numbers dying in them, are all expressed by decimal fractions; as these are carried to 7 places, to convert them to whole numbers, it would be necessary to take 10 millions for the radix of the T.—but I have thought it sufficient to assume 10,000 for that radix, and to take the nearest whole number for those who complete each year and who die in it. As far as the age of 100 I have omitted three of M. Duvillard's columns; but after that have given the T. in its orig. form, except the change of the radix.

We propose to give the T. in its condensed form throughout; but as the arrangement of the T. in its orig. form is held to have constituted an improvement in the construction of life T., we now furnish the reader with the titles of the cols. of the orig. T. in the order of their sequence:—1. Age. 2. Sum of the living. 3. Living of each age. 4. Deaths of each age in the year. 5. Of how many one dies ann. 6. Mean life. 7. Probable life. By "mean life" was implied what we call "expectation"; the "prob. life" was used in the sense in which it is still employed.

Here is the abridged T. carried to the full extent of life :

DUVILLARD'S TABLE OF FRENCH LIFE—Abridged.

Age.	Number who complete that year.	Number who die in their next year.	Expectation.	Age.	Number who complete that year.	Number who die in their next year.	Expectation.
0	10,000	2325	28'76	56	2488	86	13'98
1	7675	957	36'35	57	2402	87	13'46
2	6718	471	40'43	58	2315	89	12'95
3	6247	260	42'44	59	2226	90	12'45
4	5987	155	43'26	60	2136	92	11'95
5	5832	102	43'40	61	2044	93	11'47
6	5730	72	43'16	62	1951	95	10'99
7	5658	56	42'70	63	1856	96	10'53
8	5602	47	42'12	64	1760	96	10'07
9	5555	44	41'48	65	1664	97	9'63
10	5511	42	40'80	66	1567	98	9'20
11	5469	43	40'12	67	1469	98	8'77
12	5426	43	39'43	68	1371	98	8'36
13	5383	46	38'74	69	1273	96	7'97
14	5337	47	38'07	70	1177	96	7'58
15	5290	50	37'40	71	1081	95	7'21
16	5240	51	36'75	72	986	92	6'85
17	5189	54	36'11	73	894	90	6'51
18	5135	56	35'48	74	804	87	6'18
19	5079	57	34'87	75	717	83	5'87
20	5022	59	34'26	76	634	79	5'57
21	4963	60	33'66	77	555	70	5'29
22	4903	62	33'07	78	481	70	5'04
23	4841	63	32'49	79	411	64	4'80
24	4778	64	31'91	80	347	58	4'60
25	4714	65	31'34	81	289	52	4'42
26	4649	66	30'77	82	237	46	4'29
27	4583	67	30'20	83	191	39	4'19
28	4516	67	29'64	84	152	33	4'15
29	4449	67	29'08	85	119	27	4'16
30	4382	68	28'52	86	92	20	4'21
31	4314	68	27'96	87	72	15	4'28
32	4246	69	27'40	88	57	10	4'28
33	4177	68	26'84	89	47	9	4'07
34	4109	69	26'28	90	38	7	3'87
35	4040	69	25'72	91	31	6	3'67
36	3971	69	25'16	92	25	6	3'41
37	3902	69	24'59	93	19	4	3'28
38	3833	69	24'03	94	15	4	3'10
39	3764	70	23'46	95	11	2	2'92
40	3694	70	22'89	96	9	3	2'74
41	3624	70	22'32	97	6	2	2'57
42	3554	71	21'76	98	4	1	2'40
43	3483	71	21'19	99	3	1	2'24
44	3412	71	20'62	100	5	2	2'08
45	3341	73	20'05	101	3	1	1'93
46	3268	73	19'48	102	2	843	1'78
47	3195	74	18'91	103	1	505	1'65
48	3121	74	18'13	104	581	288	1'51
49	3047	76	17'79	105	192	155	1'39
50	2971	77	17'23	106	138	078	1'26
51	2894	79	16'68	107	060	036	1'16
52	2815	79	16'13	108	024	015	1'10
53	2736	81	15'58	109	009	006	1'00
54	2655	83	15'04	110	003	002	1'00
55	2572	84	14'51				

According to the statement of Laplace, in his *Théorie Analytique des Probabilités*, 1812, the pop. of the Communes from which the returns were made was on the 22 Sept. 1802—2,037,615, and the number of the returned deaths during the three preceding years were, of males 103,659; of females 99,443: whence it follows that, on an average of those 3 years, there died ann. 1 of 30'1. The departments from which these returns were made

were chosen throughout the whole surface of France, so as to balance the effects which might arise from varieties of situation and climate; and this rate of mort. differs very little from the estimates of Mohean and Necker, made before the Revolution.—*Vide* Milne.

Milne, who first made this T. known in England, says concerning it:

The T. is merely an abridgment of that pub. by M. Duvillard in his treatise on the mort. produced by the smallpox. He has there said very little about the data he derived it from, or the method in which he constructed it: he merely informs his readers, in a note, that it is the result of a considerable number of obs. made in various parts of France before the Revolution; that it is founded on 101,542 deaths at different ages, which took place in a pop. of 2,920,672 individuals; and that in the period in which the obs. were made, the relations between the ann. marriages, births, and deaths, the numbers of the living, and the rates of mort. at the different ages, had attained all the uniformity that can be expected to result from the operation of so many causes, both moral and physical, as influence these events.

Upon comparing this T. of M. Duvillard with that for Montpellier, it will be found that the rate of mort. according to the latter is greater than according to M. Duvillard's, until the 6th year of age; from thence it continues less until the 87th year, and is then greater during the rest of life.

There is a peculiarity in the expec. of life according to the *Carlisle* T. of Mort. and that of M. Duvillard, which I have not found in any other. . . . According to M. Duvillard's T. the expec. of life in France is 4'15, a minimum, at the age of 84: it then increases till about the age of 87½, when it is about 4'30, a maximum; from thence it decreases to the end of life, and is not again so low as at 84 until about 89. [CARLISLE T. OF MORT.]

In a letter from Baron Delessert addressed to Mr. Thomas P. Courtenay, M.P., Chairman of the Select Parl. Committee on Friendly Sos. 1825, there occurs the following passage regarding this T.: "It was drawn up by M. Duvillard from documents collected by the Minister of the Interior."

Mr. Francis Corbux, in his *Doctrine of Compound Int.*, etc., 1825, speaking of the more prominent writers on the prob. of life, says:

Tenth and last,—Subsequently to the works of other authors of any note, concerning this general subject, M. Duvillard of Geneva pub. in the year 1806 some amongst the results of his laborious and scientific researches on the pop. of France at large. Having been supplied, under Gov. authority, with adequate means of information, embracing a very extensive portion of the French territory, the statistical data he has been able to collect, together with his deductions from them, are at present, and indisputably, admitted as more correct and exempt from objections than any other documents existing of the same kind. In bringing into view the results of M. Duvillard's researches comparatively with those noticed in the foregoing para., there are sufficient grounds for assuming that they exhibit a very fair specimen of the law of mort. indiscriminately applicable to the kingdom of France, such as it existed previously to the year 1790; and it is prob. that, were our institutions in Eng. such as to afford local information equally authentic and extensive on the same subject, very little difference would be found to exist between the two progressions, expressive of the decrements of human life for the one country and for the other.

The correctness of M. Duvillard's decrements of life may the more be relied on, as he has applied to them a very ingenious method of rectifying the inaccuracies with which an assumed law of mort., derived from any course of obs., will prob. be tainted, consequently to the casual character of the events obs. in limited number. His method reduces the general expression of a correct law of mort. to that of a *parabolic curve*. . . . Without such previous rectification of any T. deduced from actual obs., even a tolerable approach to accuracy in the ultimate results, referable to very advanced years, and expressing the expectations of life, together with the values of life annu., could only in vain be expected. *In fact, M. Duvillard's T. of Decrement is the only one in existence that may, in any degree, be depended upon for that purpose.*

The Eng. Reg.-Gen., in his 5th Rep., pub. 1843, says:

The mean duration of life in France according to Duvillard's T. is only 28'76 years. The duration of life is, I believe, longer in Eng. than in any other country; but it is scarcely credible that the lives of Frenchmen should be 12 years shorter than the lives of Englishmen, and 10 years shorter than the lives of Swedes. *The T. prob. involves the same errors as the Northampton T.*

Dr. Farr says in the Appendix (part 2) of the 6th Rep. of the Reg.-Gen., pub. 1845, "A great improvement in the Life T., suggested by Graunt and invented by Halley, was made in 1806 by Duvillard." The method of construction of the T. is here referred to [MORT. T., IMPROVEMENTS IN], for on the same page occur these words: "which is evidently constructed on imperfect data."

Mr. Samuel Brown, in his paper *On the Rate of Sickness and Mort. among the Members of Friendly Sos. in France*, 1855 [Assu. Mag. vol. v. p. 208], says:

. . . Duvillard . . . formed a T. of obs. from a great number of facts collected in various parts of France before the Revolution, which he conceived to represent very closely the actual law of mort. in that country; but so many changes in the pop. have occurred for the better since that period that, if it ever represented the real state of the question, it has for some time been deemed to show too high a rate of mort., and ceased to be regarded with much authority.

It may be remarked that the T. of Duvillard bears much the same analogy to that of Deparcieux which the *Northampton* T. does to the *Carlisle*, and has consequently been used in a similar manner; the former having been adopted to a great extent for *L. Assu.*, and the latter for *L. Annu.* Out of 1000 persons at age 25, the survivors will be—by Duvillard 553, and by Deparcieux 510; by the *Northampton* T. 343, and the *Carlisle* 514. [FRANCE.] [MORT., LAW OF.]

DUVOIR, M. LEON, PARIS.—Some years since this gentleman entered into contracts for warming and ventilating buildings in Paris. We take the following details from a paper by Mr. Edwin Chadwick, C.B., in vol. xxii. of *Statist. Journ.*, p. 406 [1859]:

The ends attainable by good sanitary works have been advanced beyond the points I have described. An able mechanic in Paris contracts, on a large scale and successfully, for the attainment of results in warming and ventilation, and contracts to warm cheaper in Paris, where coal is 46s. p. ton, than it is done for manufacturers in Manchester, where coal is, I believe, less than 9s. p. ton. He contracts to warm and ventilate the Madeline, which has 60,000 cubic metres of space, night as well as day, for 14 francs per diem. . . . Contracts to keep the Hospital La Raboisière warmed up to 62°, night as well as day, and to change the air every hour. Each bed has 56 metres of space, and the contract price of performing this service is at the rate of 2 sous p. diem p. bed; and he does more than his

contract—he changes the air every three-quarters of an hour, and furnishes 8 gallons of warm water p. diem p. bed in the bargain. The contracting administrators concern themselves only with these results, leaving the contractor to his own devices as to the means and their management by his own servants. By this change hospital gangrene is banished, and the recovery of the patients is expedited.

DWELLING-HOUSE.—Where a building is insured as a dwelling-house, it is not a warranty that it is a tenanted house, nor that it shall be always occupied while the risk endures, nor that it shall be guarded by a keeper. And even if a building be insured as an *occupied* dwelling-house, and the application was made for a pol. on an *occupied* dwelling-house, this is not a warranty that it shall remain occupied, but only a warranty of the fact that it was so occupied at the time the ins. was effected. The hazard of fire may be greater when a dwelling-house is left untenanted, and it may be equally so when there is a change of tenants; but a change of tenants, unless in violation of express agreement, has no effect on the contract of ins., notwithstanding the first tenant may have been a prudent one and the second a grossly negligent one. The words in a pol. describing a house as “at present occupied as a dwelling-house, but to be occupied hereafter as a tavern, and privileged as such,” are not a warranty that the house should certainly be occupied as a tavern. Nor is a representation as to the position of a building with respect to others, made by the insured at the time of his application, a warranty that the buildings will retain that position during the time covered by the pol. To have that effect it must be so expressed in the pol.

The preceding is a summary as rendered by Flanders [*Law of Fire Ins.* 1871] of the law in the U.S. as settled by various decisions. We do not remember that any of these specific points have ever come before the British Courts for determination.

Dwelling-house risks, other perhaps than country mansions, are regarded as the cream of Fire Ins. bus. in this country. As to their number, construction, improvement, etc., see HOUSES.

DWELLINGS.—See HOUSES.

DYETT, MARK, was orig. Sec. of *Colonization Assu. Corp.* founded 1850.

DYING, CHANCES OF.—Mort. T., i.e. Life T., of modern construction show the “prob. of dying in a year,” which is of course the converse of the “prob. of living a year.” The same col. which shows the prob. of dying shows the net cost of insuring for any one year. Take the col. “prob. of dying in a year,” as given in *EXPERIENCE T.* No. 2—the figures opposite to age 30 are ‘00826, which signifies that 8·26 persons would die within the year out of 1000 persons of that age; therefore each person must pay down at the beginning of the year, in order to ins. £1000 in case of death during the year, £8·26—less discount at the rate at which the premiums are calculated to be improved during the year. But no provision is here made for expenses of conduct of bus. [*LIFE INS. PREMS.*] [*MORT. T., CONSTRUCTION OF.*]

DYKE, PHILIP, Sec. of *Beehive Fire*; was trained to the bus. in the *Royal Farmers*, where in 1865 he was 2nd fire clerk. From thence he went into the foreign department of *Royal* at the head office. In 1868 he was in the Lond. office of *Etna*; and afterwards he held a position in the Lond. office of the *Queen*. Several years since he compiled a very clear and useful “Agent’s Instruction Book.”

DYMOND, JOHN JOSEPH, F.I.A., Sec. of *Friends Provident* since 1857. Mr. Dymond was trained to the bus. of banking. He had not been long engaged in life ins. before he discovered the anomalous circumstances attending the assessment of extra prems. for foreign travel and residence. The steps he took in view of inducing some improvement will be fully set forth under *FOREIGN RESIDENCE* and *TRAVEL*.

DYNAMITE.—A new explosive compound invented by M. Nobel, and made known in 1868. It is chiefly used for mining purposes. Its manufacture is very dangerous. [*EXPLOSIONS.*]

DYSENTERY.—A specific inflammation of the mucus lining of the large intestine. It is also named *COLONITIS*; and in common language *flux*, or *bloody flux*, according as the intestinal discharges are free from blood or sanguinolent.—*Hoblyn*.

Dysentery was one of the most destructive diseases among the unwashed artisans of Old Lond. It is a disease of the dirty and ill-fed, and carries off its thousands in camps, and in those cities whose inhabitants live as if in camps. It does not make its appearance in the old Bills of Mort. under the classical appellation of dysentery, but in the homelier garb of several Saxon synonyms; thus in 1670: Bloody-flux, scouring and flux, 142—Gripping in the guts, 3690. In 1680 Bleeding, bloody-flux, and flux, 68—Gripping in the guts, 3271. In 1690 Bleeding, bloody-flux, and flux, 23—Gripping in the guts, 2269. But by 1717 the deaths from these causes had materially decreased: Bleeding, 1; Bloody-flux, 12; Flux, 10; Gripping in the guts, 653. Another of the *aliases* of dysentery, and a very forcible one, was “plague in the guts,” which often occurs in the old Bills.—*Comp. to Almanack*, 1835.

Dysentery declined very rapidly during the last century. This was demonstrated by a special series of obs. made by Heberden.

Dr. Pringle, in his *Diseases of the Army*, gives much important information regarding dysentery.

A remarkable outbreak of epidemic dysentery occurred at Taunton in 1837, and it spread to some extent into the surrounding districts. An account of 223 deaths from this cause in Taunton is given in the first Rep. of the Reg.-Gen. of England.

The Commissioners of the Census for Ireland, 1851, furnish in their Rep. a table of the visitations of dysentery to which that country has been subjected from A.D. 365 down to 1850. The list is appalling. They say in reference to the period immediately under their obs. [part v. vol. i. p. 428]:

Next to fever, this disease formed the most extensive cause of death of the epidemic and contagious class, during the ten-year period ending March, 1851; *it having prevailed as an epidemic, during that time, to an extent unparalleled in the medical annals of this country.*

It is a mistake, although a very popular one, to ascribe this disease to the eating of fruit. The Reg.-Gen. remarks:—"Fruit, potatoes, and green vegetables, are essential parts of the food of man, and it is only when taken to excess that, like other articles of diet, they disorder the stomach. Dysentery is the constant and fatal epidemic of camps, and often visits them when fruit is entirely out of season, or out of reach of the men."—See 11th Rep. pub. 1852.

Mr. Haviland, in his interesting work, *Climate, Weather, and Disease*, 1855, gives much information regarding the views of the early classical writers upon this disease.

Dr. J. Ranald Martin, in his *Disorders and Diseases of Tropical Climates*, 1855, says that dysenteries become more frequent, severe, and complicated in the rainy months that succeed to the hot season in the East. But he also adds that dysenteries, frequently complicated with hepatic disease, are among the acute diseases of the cold season.

A series of obs. in E. and W. extending over a number of years show that here dysentery prevails in the summer months as 3 to 1 in the winter and spring months; and in the autumn as 2 to 1 in the winter and spring.

Dr. Allen, in his *Medical Examinations for Life Ins.*, says:

Dysentery, when present, rejects; and if the party is subject to its recurrence, inquiry must be made as to its cause and origin. Chronic colitis or enterocolitis reject. But many cases of supposed dysentery depend solely on hæmorrhoids, local, curable ulceration, or morbid growths about the rectum. Nevertheless, it is safe to say that tenesmus, discharges of blood and pus, especially with occasional febrile heat and emaciation, should reject. The condition of the liver in such cases should be carefully observed.

DYSENTERY, DEATHS FROM (Class, ZYMOTIC; Order, *Miasmatic*).—The deaths from this cause in E. and W. show of late years a steady decrease. In 10 consecutive years they were as follows:—1858, 1478; 1859, 1379; 1860, 1156; 1861, 1416; 1862, 1044; 1863, 1051; 1864, 1000; 1865, 1072; 1866, 1096; 1867, 962; thus presenting a decrease of from 77 p. million of the pop. living in 1858, down to 52 in 1862, and to 45 in 1867. Over a period of 15 years ending 1864 the average had been 84 per million. In 1852 it had been as high as 154.

The deaths in 1867 were: males, 507; females, 455. They were chiefly at the early ages, and the extreme middle ages, continuing to the more advanced ages.

DYSKRASIA [DYSKRASIA] (from the Greek, signifying bad temperament of the body).—A morbid state of the constitution produced from a faulty blending of matters to form a compound, as the blood. Tabes, chlorosis, scorbutus, dropsy, diabetes, pyæmia, tuberculosis, carcinoma, are indications of this condition of body.

DYSPEPSIA.—Indigestion; difficulty of digestion; difficult and imperfect conversion of the food into nutriment.

In our art. CONCEALMENT, under the cases there quoted relating to life ins., is that of *Watson v. Mainwaring*, 1813, wherein the question at issue was whether the life insured had *organic dyspepsia*, or only a milder form of the disease; and upon this occasion Mr. Justice Chambre remarked, "If dyspepsia were a disorder that tended to shorten life, . . . the lives of half the members of the profession of the law would be uninsurable." But, notwithstanding this learned dictum, it *does* tend to shorten life; and it has this disadvantage, viz. that it may be, at least for a time, concealed so as to baffle any but the most experienced medical scrutiny.

Dr. Adams Allen, in his *Medical Examinations for Life Ins.*, says:

Dyspepsia is primarily noteworthy because it is one of the initiatory symptoms of the tubercular diathesis. Or it may evidence organic malignant or non-malignant disease of the stomach. It may be sympathetic of cerebral or renal, of uterine or spinal affection of more or less serious character. In the larger proportion of instances it indicates merely a catarrhal condition of the gastric mucus membrane, or slight disturbance of the hepatic functions. But whatever its cause, duration or severity, whenever present, it should receive ample consideration. [DIGESTIVE ORGANS, DISEASES OF THE.] [DISEASES OR DISORDERS TENDING TO SHORTEN LIFE.]

DYSPHAGIA.—Difficulty of swallowing; choking.

DYSPNŒA.—Difficult respiration; short breath; short-windedness; pursiness.—*Hoblyn*.

Dr. E. H. Sieveking, in his new work, *The Medical Adviser in Life Assurance*, 1874, says:

Dyspnœa is a symptom that may depend upon imperfect performance of the cardiac or pulmonary functions. In either case, if not accounted for by preceding violent exercise, it shows actual disease of the heart or lungs, or a disturbance in the balance of the circulation and respiration, which depends upon disorder of the other organs capable of influencing the circulation; thus we have breathlessness of cardiac, of pulmonary, of hepatic, of cerebral, and of hæmic origin. Its source and nature must be determined according to those rules of diagnosis which are taught in systematic works on medicine, and by the bedside. Where it is due to temporary influences, brief rest will speedily remove it, and equable respiration and a calm pulse will take the place of the previous turmoil.

E.

EAGLE FIRE INS. CORP. LIM.—Projected in 1874. The proposed cap. is £1,000,000, in 50,000 shares of £20; first issue 20,000 shares. The objects of the Corp. include the transaction of the bus. of F. Ins. at home and abroad in all its varieties and branches; “the acceptance from Marine Ins. Cos. and underwriters of so much of their risks, or any part thereof, as is involved in the liability for loss by fire under their pol.,” the transaction of re-insurance; and “with the consent of a gen. meeting to enter upon the bus. of Marine Ins.” The preliminary prosp. says:

The estab. of the *Eagle F. Ins. Corp.* has been determined on, in view of the immense increase in the insurable property of the U.K. which appears to require for its protection the formation of a new Fire Ins. Co. . . . In add. to the ordin. bus. of Fire Ins., the Co. will be prepared to insure property at sea against accident by fire.

Measures are in progress for the formation of boards in different parts of the U.K., and the advantages offered by local inst. will thus be supplied, combined with the security of extended area of operation and variety of risk: the want of which are too frequently the cause of failure in ordin. district undertakings. . . .

The Co. will be constituted so as to be able to extend its bus. to the colonies and foreign countries under well-considered provisions, and as favourable opportunities occur.

An earlier ed. of the prosp. contained the following special feature:

Opportunity will also be afforded to shareholders for direct participation in the bus. by taking on their own account, on the principle adopted at Lloyds, portions of risks on a scale regulated by the number of shares held.

This feature has been withdrawn from the later prosp. We have only to add. the following paragraph to insure for the undertaking the watchful interest of F. underwriters in all parts of the world:

Mr. Swinton Boulton, the originator and late Man. Director of the *Liverpool, London, and Globe Ins. Co.*, will be the Man. Director of the Co. He brings to its service the knowledge and experience acquired during a successful management extending over a period of more than 30 years.

EAGLE INS. CO.—Founded in 1807, with an authorized cap. of £2,000,000, in 40,000 shares of £50, of which £5 p. share was paid up.

The reason for the large cap. was unquestionably the Fire bus. of the Co., which in the earlier prosp. received the more prominent mention. There were indeed some special features in regard to this branch of the Co.’s bus., of which we shall speak in detail under **FIRE INS., PRACTICE OF.** The insuring the rent of premises in case of becoming untenable by fire, as part of the ordinary risk, was one of those features.

The Co. commenced bus. on 23 October, 1807; but its D. of Sett. was not executed until 17 December, same year. The D. is carefully drawn; but contained many provisions regarding the Fire bus. of the Co. which are now unnecessary. It recites that the practice of ins. property from loss by fire, and of effecting ins. on lives and survivorships, and granting, selling, and purchasing annu., has proved extremely beneficial to the public. “And whereas several of the parties hereto did lately resolve, but without assuming, or pretending or intending to assume, any corp. name or character whatever, or to act in a corp. capacity, or in any manner like a corp. body, to establish a co. for those purposes,” etc., etc. “Now these presents witness that the several persons whose names and seals are hereunto subs. and affixed, as well for their own mut. security and benefit as for the common security and benefit of their fellow-citizens and others, have resolved and agreed, and by these presents do fully resolve and agree, to form themselves into and become a Co. for the granting of pol.” etc. Then follow regulations regarding cap., etc. In case of any call beyond £5 p. share being made, “all sums of money which shall be paid by the several members of the said Co. in pursuance thereof shall be repaid to him, her, or them respectively, by and out of the future proceeds and profits of the said Co., in lieu of and previously to any further div. being made and declared upon the cap. stock thereof” (s. 5). The liability of the members limited to the amount of their shares (s. 6). The first gen. meeting to be held in October, 1811, when an exact account of receipts and expenditure was to be submitted. No member to hold more than 60 shares at any one time in the Co. (s. 11). Qualification to vote, 10 shares (s. 12). All present and future members were to ins. in the Co. for life or fire within 4 months after becoming a member (s. 19). [This last provision, which was common to most cos. of that period, is not now acted upon.] In cases of fraudulent claims, pol. to be forfeited; and where made by a member, his shares and other interests in the Co. to be absolutely forfeited (s. 39). Members knowingly and willingly acting in contravention of D. of Sett. also to forfeit all rights (s. 42). The circumstances, however, must be reported to a general meeting before actual forfeiture (s. 43). Power to directors, by a vote of three-fourths of their number, to alter clauses and provisions of Deed (s. 76). Limit of ins. on any one life, £5000 [since extended to £12,000] (s. 79). And finally the then usual provision to defer payment of claims arising from plague, famine, invasion, civil war, etc. (s. 80). This D. is enrolled in Chancery.

In 1813 the Co. obtained a special Act of Parl.—53 Geo. III. c. ccvii.—*An Act to enable the Eagle Ins. Co. to sue and be sued in the name of their Sec., or any member thereof; and to enrol Annuities.* It recites:

Whereas difficulties have arisen, and may hereafter arise, in recovering debts due to the said Co., . . . and also in prosecuting persons who may steal or embezzle the property of the said Co., or who may commit or be guilty of any other offence against the said Co., since by law the individual

members of the said Co. must in such cases sue and prosecute by their several and distinct names and descriptions.

It is then enacted that actions, etc., may be in the name of Sec. or any other member of the Co. Names of members of Co. to be inrolled in Chancery after passing of this Act; and names of new members [shareholders] to be inrolled. No action to be brought until name inrolled. Execution upon any judgment may be issued against any member, who is to be indemnified. The Act to be valid, though the Co. should be composed of entirely new members. The Co. not discharged from any responsibilities by reason of this Act.

In an early prosp. dated from the offices of the Co., "Cornhill, and Regent Street, St. James's (corner of Jermyn Street)," after setting forth the features of the Fire branch fully, we come to the following:

The Directors of the *Eagle* . . . also respectfully inform the public that by the constitution of their estab. they are enabled to grant and purchase annu., immediate, progressive, and deferred, upon the most liberal and advantageous terms; respecting which every necessary information may be had at the office, it being found impracticable, from the variety of cases which occur in this department, to present the public with any correct set of T.

Then we reach the general features:

This Co. does not require any entrance-money, or admission fine, except for non-appearance: in which case the fine will be returned, provided the party whose life is insured shall, within 12 months, appear at the Co.'s office, and he be then found unexceptionable.

No charge will be made for any pol. or certificate of renewal.

This Co., professing in all its transactions to act with the utmost candour and liberality, consistent with the nature of its estab., and the duty it owes the public, will, in cases where pol. of persons insuring their own lives are made void by those melancholy instances of death, occasioned by duelling, suicide, or the hands of justice, allow to the families of such parties, if in need of such assistance, a sum not exceeding two-thirds of what the Co. shall have received on any pol. so made void as aforesaid.

If the party insuring shall stand in need of that assistance which was intended for a surviving family, this Co. will allow a liberal price for the purchase of his or her interest in the pol.

Solicitors, brokers, and others allowed a liberal commission. . . .

Persons preferring the payment of a gross sum, or single prem., to an ann. payment, will be charged a sum exactly equivalent to the ann. prem.

The "conditions of Life Ins." are also set forth in detail. Mr. William Beetham was at this time Sec.

This Co. carried on the bus. of fire ins. down to 1825. In 1810 it collected duty, £11,355; in 1821, £15,510. The price of the shares in 1825 was £4 15s., indicating that the fire bus. had not been successful.

In 1818 the Co. defended an action under a fire pol. for £3000—*Mist v. Sir William Rawlins*, the then Chairman of the Co. The pleas of the office were, first, that the plaintiff had no interest; and, next, that he had wilfully caused the premises to be destroyed by fire on 23rd May, 1817. The premises destroyed were known by the name of the Metropolitan Bazaar, in Fleet Street. The jury found for the plaintiff, £2800. On this occasion the Judge, Mr. Justice Bayley, said, "It was the bounden duty of ins. offices, when circumstances of great suspicion existed, to resist any claim. It was not less their duty to pay readily the sum assured where the transaction itself casts no imputation upon the demeanour or character of the party." He did not in this case see sufficient cause for resistance.—*Ann. Register*.

In 1826 the Co. took over the bus. of the *United Empire*, and upon this occurrence a prosp. was issued—*Eagle and United Empire Life Assu. Asso.* This prosp. contained (*inter alia*) the following passages:

Life assu. having become a duty with the greater part of the pop. of these kingdoms, an inquiry is naturally made into the constitutions of the various cos. estab. for that purpose. These assu. may be divided into 3 classes, viz. *sos. for mut. assu.*, exclusive *proprietary bodies*, and *cos. protected by a subs. cap. and yet admitting a beneficial parti. in their profits*.

During periods of high interest, an inst. of the first description may acquire so large a cap. [accumulated fund] as to conceal the indefinite responsibility to which the assured is liable, and also that he is adventuring the intended provision for his family in a mercantile speculation, whose failure must involve even his real property in its fall. The exclusive proprietary co. which sells its assu. at a fixed price, without permitting any diminution of prem., or increase of the orig. claim, justly charges a sufficient sum for the security it affords; but though extraordinary success attend its operations, the assured can derive no benefit from the wealth they are creating. Hence it is evident, on the one hand, that if the fair exp. of advantage be exceeded, the proprietary body alone enjoys the excess; and on the other, if the hope be disappointed, the unprotected mut. asso. must terminate in ruin.

The so., therefore, which, neglecting no guarantee and requiring no responsibility, provides against adverse seasons by its subs. cap., yet admits parties insuring to a participation in its profits, may justly pride itself on fulfilling every duty of security and economy; and impressed with this conviction, deduced from the hist. of other estab., and their own experience for 18 years, the Directors took this present prosp. to the public.

The *Eagle and U. E. Life Assu. Asso.* is empowered by Act of Parl. The public is secured by an ample subs. cap. All payments are set apart to accumulate in a distinct and inviolable fund; the prem., which have been calculated expressly for the inst. from the data recently [1825] pub. by the House of Commons, though lower than in most of the other estab. offices, have yet been kept sufficiently high to protect them from the fluctuation in the laws of mort. and of interest, and by all these precautions, security, the first great object of the assured, is effectually provided for, and the possibility of mischance for ever removed.

At the end of every 7 years a strict investigation is made into the funds, the full value of every existing claim [pol.] determined, its amount retained, and the surplus apportioned. *Four-fifths* of the profits of these periodical divisions are then allotted to the assured.

Passing from the general to the special, we find, under the head of "Female Life Assu.," the announcement that "the directors have estab. distinct T. for assu. of male

and female life, in which the greater duration of the latter necessarily causes a considerable reduction in the prem. required for its assu." [FEMALE LIFE.] Then under "Foreign Life Assu." we have the following :

There are few who have not at some period of their lives been called abroad, and at the present enterprising moment, a pol. which should restrict a man's exertions within the limits of Europe, or subject him after the payments of many years to an arbitrary demand for every add. indulgence, *must be felt as an incumbrance rather than a protection.* To obviate this, one of the greatest evils of a still imperfect system, I. have been constructed for all the principal commercial or colonial estab., and by the selection of this inst., a person now residing in Eng. enjoys the gratuitous advantage of knowing, from the commencement of his assu., the rate at which he must be accepted, and be entitled to proceed wherever his future fortunes may call him; but to all who are professionally exposed to the risk of sea and climate, to military and naval officers, to diplomatic and commercial agents in foreign states, to supercargoes, master mariners, etc., the estab. of this department of the *Eagle*, etc., is of essential and immediate advantage. *A general ann. prem. will be named, calculated upon the dangers incidental to the profession of the party assuring, with free permission in his pol. for him to fulfil all the duties of his vocation, in any part of the world to which he may be destined.* Or, at the option of the assured, a special prem. to meet any particular risk will be determined, to commence with the departure of the party, and terminate at his return. [FOREIGN RESIDENCE.]

Under "Assu. on the lives of Invalids" there occurs this passage :

The general rule for the exclusion of those afflicted with gout, hernia, etc., which has prevailed in most offices, deprives of their protection the class to which it is most necessary, exposes the largest properties to the hourly hazard of an impaired constitution, and increases the anxiety of the sick, as he looks forward to the number of years which must elapse before his *labours can accumulate the subsistence for his family*, which an assu. on his life would create in a day. To this extended department of their bus. the directors have paid the greatest attention, and have resolved, under scientific guidance, to issue pol. on lives afflicted with the prevalent cases of chronic complaints, defective structure, and functional or mental derangement. The proposing party will forward a private but unreserved statement to the physician of the office, accompanied by the names of his medical attendants; by them and the medical officer of the inst. the remaining inquiries will be conducted, and carefully avoiding all delay or irrelevant discussion, a prem. will be named apportioned to the risk.

Under "Official Accommodations" we are told :

The directors having thus in their general principles endeavoured to extend the utility and improve the practice of life assu., will, in all details of the office, meet, as far as possible, the convenience, and facilitate the bus. of parties assuring. . . . Whenever particular circumstances render a personal appearance unpleasant or inconvenient, a medical attestation will be considered as satisfactory. When the ordin. certificates cannot be procured, the age is admitted from the commencement of the assu., and can never become the subject of future inquiry. . . . No charge for admission, or any fee required, under any pretence (beyond the prem. and the Gov. stamp). . . . The Co. will purchase the pol. of the assured, or, to suit the convenience of the parties, advance a sum not exceeding two-thirds of its value, to aid them in continuing the ann. payments. Assu. may be effected by letter, medical practitioners of eminence having been appointed as referees in every part of the kingdom. The particulars required are, the name, age, residence, state of health, and profession of the life to be assured, the sum proposed, and whether to continue during the whole of life, or for what limited period. Annu. purchased and granted. Any further information—the particular rates of prem. for survivorships, endowments, joint lives, and other contingencies—. . . may be obtained by personal application at either of the offices of the Co., or by letter, etc.

Mr. Henry P. Smith was at this date the Act. of the Co. A prosp. of the Co. issued about 1830, under the orig. title of the *Eagle*, says :

No person can be elected a director who is not himself assured for a large and specified amount, and the same law applying to auditors, the government of the Co. and the inspection of its affairs are placed in the hands of the assured, who are most deeply interested in its welfare.

It had been resolved in 1826 that four-fifths of the profits should be divided among the parti. pol.-holders septennially. The first division fell to be made in 1833; but on that occasion the directors, no doubt very wisely, resolved that no distribution should be made. The first allocation of surplus therefore actually took place in 1840.

The year 1847 may be regarded as a new era in the hist. of the co., and for the several following reasons—(1), in that year it took over the bus. of the *Protector* Life, which had been founded in 1835, and had absorbed the bus. of *Mariners and General* (founded 1843); (2), and most important, it obtained on the same occasion the services of Mr. Charles Jellicoe, whose name has become so prominently associated with the later development and policy of the Co.; (3), it adopted a new scale of prem. founded upon the *Experience* T. No. 1. We propose to make this our datum-line of comparison. The surplus was thereafter to be distributed quinquennially.

The pols. in force in the *Eagle* on 30th June, 1847, were 2684, insuring £1,827,050, and yielding in prems. £58,705. The accumulated ins. fund stood at £493,000. The add. pols. obtained by the absorption of the two cos. named were 1315, insuring £1,005,469, and yielding in prems. £34,575. The share cap. at this date stood at £121,000 paid up, represented by about 22,000 shares, held by 900 proprietors. At the general meeting held in this year it was resolved that the actuarial investigations be made quinquennially instead of septennially.

At the ann. meeting held in 1851 (to receive the accounts, etc., for the preceding year), the chairman said :

When the proprietors last met they were informed that the last two years' bus. was more than double the separate transactions of the *Eagle* Co. in the two years previous to the amalg.; and the bus. of the present year has progressed in the same manner: while with regard to the expenses, whereas formerly those of the *Eagle* were about 8 p.c., and those of the *Protector* were not far from 12 p.c. on the prems. received, the rate was now reduced to little more than 5 p.c. in consequence of the amalg.

This we may be sure was the incentive to further steps in the same direction.

In 1854 Mr. C. Jellicoe read before the Inst. of Act. a paper: *On the rates of mort. prevailing amongst the Male and Female Lives assured in the Eagle Ins. Co. during the 44 years ending 31 Dec. 1851.* The contents of this paper will be dealt with under EAGLE LIFE, MORT. EXPERIENCE OF.

In 1855 the Co. took over the bus. of the *Mentor* Life (founded 1848). The bus. of this office at date of trans. consisted of 1146 pols., ins. £337,675, and yielding in ann. prems. £9576. Out of this amalg. arose some legal proceedings, which will be spoken of under date 1858.

In 1856 the *Eagle* took over the bus. of the *Palladium* Life (founded 1824). The assets of the last-named Co. at the end of 1855 were £412,392 (which, however, included £74,969 of paid-up cap.), and the ins. then in force were 1468, insuring £1,412,277: of which, however, £145,789 was re-insured. The prem. income was £44,510. On the occasion of this union, the affairs of both Cos. were carefully investigated—those of the *Eagle* for the satisfaction of the *Palladium* shareholders; those of the *Palladium* for the satisfaction of the proprietors of the *Eagle*. The result was mutually satisfactory.

At the ann. gen. meeting of the Co. held 19 Aug. 1857, full reports on the result of the previous amalg., as well as on the entire position of the Co.—that being the period of a quinquennial investigation—were submitted by the directors and act. The figures will be given in tabular form at the end of this art. Special resolutions were passed authorizing the directors to enter upon further amalg., and, if necessary for the purpose, to increase the cap. of the Co. to any sum not exceeding 3 millions. Power was also taken to make allowance to directors and officers of amalgamating cos.

In this same year the Co. took over the bus. of the *London Indisputable* (founded 1848) and of the *London Mutual* (founded 1849). In the case of the *Indisputable* certain fixed reductions in the future prems. were agreed to be made [LONDON INDISPUTABLE.] Out of the trans. of the *London Mut.* arose some protracted Chancery proceedings, which we shall speak of in our hist. of that office.

In 1858 it absorbed the *Albion* (founded 1805) and the *Alfred* (1839). The bus. of the *Albion* was considerable. Its accumulated life fund on 29th Sept. 1855—at which period the Co. had been half a century in existence—was £393,253, with a further sum of paid-up cap. and accumulations, £92,943. Total funds at that date, £486,196. [ALBION, (No. 1).] The *Alfred* had a small but sound bus. Its total assets in 1857 were £160,000, of which £20,000 was paid-up cap.

The ann. income of the *Eagle* had now reached about £365,000. Of this income about £80,000 was from non-par. ins., and it was estimated that the profits from this branch of the bus. would bear the future expenses of man. and form a profit fund for the shareholders (*vide* Rep. 1858).

In 1858 a case came before the Equity Courts, arising out of the trans. of the *Mentor*. That Co. had effected a re-insurance with the *Athenæum* Life for £2000; the interest in this re-insurance passed over to the *Eagle*. The life insured died; the *Eagle* paid the claim in usual course, and came upon the *Athenæum* (then in liq.) for the £2000 under the re-insurance pol. The re-insurance had been effected by an indorsement on the orig. pol. as follows:

Mem. *Athenæum* L. Assu. So.—The *Athenæum* L. Assu. So. guarantee the *Mentor* L. Assu. Co. the whole of the within assu. on the same terms and conditions, at a prem. of £33 5s., payable half-yearly, on the 16th day of Jan. and 16th day of July, or within 30 days thereafter; and will issue, whenever required, a stamped pol. numbered 327 in favour of the *Mentor*, on payment of stamp duty.

The pol. had never been issued; and it was now attempted on behalf of the *Athenæum* Co. to repudiate the indorsement on the ground that it was not under the seal of the Co.; but it was *held*, that such a memorandum was binding upon the general body of the shareholders, and created a good equitable debt. [INDORSEMENTS.] [RE-INSURANCE.]

In 1859 the Co. took over the business of the *City of London*, founded in 1845, and which had itself absorbed the following Cos. (1) *Absolute*, founded 1856; trans. 1857. (2) *Achilles* [No. 2], founded 1853; trans. 1858. (3) *County Mutual*, founded 1849; trans. 1853. (4) *Deposit and General*, founded 1852; trans. 1856. (5) *Observer*, founded 1855; trans. 1857. (6) *People's*, founded 1847; trans. 1851. (7) *Protestant*, founded 1852; trans. 1856; and which last had absorbed the *National Friendly* (founded 1846; trans. 1853). [CITY OF LONDON, 1845.]

In 1862 negotiations were entered into for taking over the bus. of the *Argus* Life; but the arrangement was restrained by the Court of Chancery as being contrary to the provisions of the D. of Sett. of the *Argus*.—*Aldebert v. Leaf*, 1862-4.

The *Albion* Co. had a considerable bus. in the U.S., and had made (in 1854) the required deposit of £20,000 in N.Y. State. The bus. now merged into the *Eagle* Co. Mr. Barnes said in his 4th Ann. Rep. (1863):

The *Eagle* has never yet filed an ann. statement in this department in conformity to the new forms; its numerous amalg. and immense bus. have undoubtedly rendered the making of an exhibit in accordance with the department blanks, and furnishing a description of pol. in force, an Herculean task, requiring considerable time, great labour, and some familiarity with the N.Y. system of reporting, which is at so much variance with the estab. precedents and practices of the old cos. in Gt. Britain. Finding the task of furnishing the usual ann. statement and description of pol. so difficult and embarrassing, the officers of the *Eagle*, since the death of R. S. Buchanan, Esq., the late N.Y. agent, have instructed his successor to discontinue for the present the issuing of new pol. The necessary prepara-

tion of the semi-ann. returns now required by the Cos. Act, recently passed by Parl., will probably facilitate the preparation of a portion of the material required for the American statement.

At the end of 1864 the Co. took over *National Mercantile* (founded 1837), and which had itself absorbed the *United Mercantile and Travellers* (founded 1839; trans. 1841). The ann. income of the *N. Mercantile* at end of 1863 was £92,212; its life fund, £421,011, showing an estimated surplus of £93,761.

In 1866 the Co. took over the bus. of the *Solicitors and General* (founded 1846). The bus. was not large. At the end of 1863 it had 1935 pol. in force, ins. £1,065,955, and yielding in ann. prem. £32,885. The total income was £41,731; and the total funds (including paid-up cap.), £196,337.

This completed the list of amal. cos.—making a total of 11 offices directly absorbed, or, counting the offices which they had absorbed in, a total of 20.

From time to time in recent years the Co. has applied a portion of its funds in the purchase of its own shares. This led to some comment at the ann. meeting in 1871. The then Sec., Mr. Jellicoe, offered the following judicious obs. thereon:

The *Eagle* was orig. estab. as a fire and life assu. co., and the cap. was £2,000,000, of which 10 p.c. (£200,000) was paid up many years ago. The directors, finding that the fire branch was not a profitable one, trans. it to another co., and continued from that time to transact life assu. bus. only. The main object for such a large cap. no longer existing after the abandonment of the fire bus., the directors came to the conclusion that a paid-up cap. of £100,000 for such a co. as this, having upwards of £3,000,000 of invested assets, was quite sufficient to tax the assured with, for it was well known that a large cap. in a life assu. co. operated to a certain extent as a tax upon the assured. Acting on that principle, the directors, when they could get the shares at what they deemed a proper price, made an offer for them. Immediately after a div. had been paid, they were of opinion that the shares were exceedingly well worth £6 15s., and, therefore, before a dividend was paid, they considered they were well worth £7; and they rarely deviated from those limits. The object of the directors was ultimately either to stop purchasing the shares when the paid-up cap. was reduced to £100,000, the subs. cap. being then £1,000,000, or else if they saw fit, circumstances being favourable, to go on and reduce the cap. until it had become extinct, and the Co. would then become a mut. so. (Hear, hear.) The notion of the honourable proprietor that the Co. might become a tontine by this process was altogether fallacious and out of the question. It was clearly a misapprehension on his part.

From the Rep. of the quinquennial valuation of the affairs of the Co. made as at 30 June, 1872, we obtain the following particulars. The *Carlisle T.*, 4 p.c., was used for the valuation:

The principles upon which the valuation is made and the profits distributed are determined by the directors. The value of the ann. office prem., less the deductions mentioned below, is subtracted from the value of the sums assured, the difference constituting the Co.'s liability. The proportion of profit allotted to the parti. pol.-holders is 80 p.c., and is distributed in the ratio indicated by the amount of the "loading" paid by each pol.-holder since the foregoing division.

The provision for future profit and expenses is made by a deduction of 24 p.c. from the future ann. parti. prem.; 12 p.c. from the future non-parti. prem., and of 15 p.c. from the future ann. prem. payable in respect of the special class of assurances with guaranteed bonuses.

Parti. pol. commence to participate immediately they are effected; but the add. do not vest till the pol. have been 5 years in force.

The results of the valuation came out as follows: The total amount of profit for the quinquennium was £188,376. Of this £147,723 was divided among the parti. pol., viz. 11,403, insuring £6,151,314. The other parti. pol., viz. 3308, and insuring £1,593,936 15s. 8d., being entitled to future reduction of prem. only; and for this a special reserve had been otherwise made, viz. by deducting 15 p.c. from prem. before valuation. No new pol. of this last class are issued.

The amount of immediate annuities payable was £9103 os. 2d.—the annuitants ranging from 17 to 91 years of age. There were some deferred and other annu. in add.

The average rate of int. which the life fund had yielded during the then past 5 years was as follows: 1868, £4 4s. p.c.; 1869, £4 4s. 6d. p.c.; 1870, £4 5s. 4d.; 1871, £4 8s. 1d.; 1872, £4 8s. 9d.

The surrender values are calculated at 75 p.c. of the result obtained by a net prem. valuation—"experience mort."—and the surrender value of endowment ins. is determined in like manner. Endowment pol. are not now issued by the Co.

The Co. transacts no bus. at other than European rates, such extra prem. as may be charged for residence in other climates being discontinued on the return of the ins. within the ordin. limits.

At the ann. gen. meeting in 1872 various alterations were made in the D. of Sett., "for the better carrying on and conducting the Co.'s affairs."

The Co. in its early days had its head office in Cornhill, with a branch at the West End. Its bus. was afterwards centred in one office in New Bridge Street, Blackfriars, from whence it was ejected, by purchase, for the purposes of the London, Chatham, and Dover Railway.

The present offices of the Co. were erected in 1867 on the only piece of freehold land on the south side of Pall Mall. This piece of ground, with a house thereon, was given by Charles II. to the famous Nell Gwyn, who lived there—creating much scandal at the Court—from 1671 till her death in 1687. It was granted to her in the first instance only on a long lease: upon her discovering this, she sent word to the King that she would not accept it till it was conveyed free to her by an Act of Parl. made on and for that purpose. Dr. Heberden (frequently mentioned in this work) afterwards became the owner of the property, purchasing it from the Waldegrave family, and rebuilt the house—the house that was pulled down to make room for the present building.

The successive chief officers of the Co. have been Mr. William Beetham, Mr. Henry P. Smith, Mr. Jellicoe, Mr. Humphreys.

The following T. embodies the leading financial features in the hist. of the Co., given at the period of the several investigations for surplus from 1847 downwards :

Year ending 30 June.	New pol. issued.	Insuring.	New premis.	Total income.	Total pol. in force.	Total ins. in force.	Life Ins. Fund.	Surplus distributed.	Total claims paid since 1847.
		£	£	£		£	£	£	£
1847	...	...	6635	117,259	2684	1,827,050	493,000	...	...
1852	...	...	5947	127,716	3914	2,723,512	738,884	60,670	...
1857	...	...	11,906	217,453	6537	4,858,277	1,118,700	135,858	...
1862	...	...	24,374	390,536	16,257	9,639,221	1,730,000	158,650	...
1867	...	...	15,401	520,885	20,978	13,015,705	1,738,661	208,774	...
1872	373	270,017	9791	485,328	17,750	9,971,642	2,937,599	184,654	4,745,988

EAGLE INS. CO., MORT. EXPERIENCE OF.—In 1854 Mr. Jellicoe, the then Act. of the *Eagle*, read before the Inst. of Act. a paper, *On the Rates of Mort. prevailing amongst the Male and Female Lives assured in the Eagle Ins. Co. during the 44 years ending 31 Dec. 1851* [*Assu. Mag.* iv. p. 199]. After stating generally his view of the value and importance of investigating the mort. experience of ins. asso. [EXPERIENCE T. GENERALLY CONSIDERED], he proceeds to state the processes employed in the construction of the following T. :

As in most other sos. of similar age and character, the instances of several assu. being effected on the same life were found to be numerous; and the first care was therefore to eliminate all duplicate assu. and to restrict the obs. in every case to the first, or at least to one assu. only, on each life. [DUPLICATE POL.]

Having then reduced the Regis. of the Co. to a list of the persons assured, in which the name of each individual appeared but once, and which comprised only such as were considered at the time of their entering to be of unimpaired health and constitution, a careful record was made of the age at admission, the number of years' continuance, and the age at death or discontinuance of all the lives, each sex being taken out separately.

We have here, then, presented, the experience as to the duration of life of a pop. consisting of 7419 individuals—viz. 5493 males and 1926 females—selected with more or less care from amongst persons for the most part in the middle and upper ranks of life, and traced from year to year for a period, on the average of about 8½ years from the time of their admission—the age of each being, in the great majority of cases, ascertained by certificate, or authenticated by formal declaration. As regards the results exhibited when the sexes are distinguished, I have not thought it worth while to tabulate in each case more than the mort. p.c., and the prob. mean duration of life—or after lifetime, as Mr. Farr aptly calls it. These elements afford a good means of comparison, and will enable us sufficiently to judge of the relative vitality of the sexes as between each other, and as contrasted with that which the best authenticated T. exhibit.

These T. regarding the relative mort. of the sexes we shall give, with their accompanying details, under FEMALE LIFE. In the T. here given the sexes are blended. Mr. Jellicoe proceeds :

As might be expected, the blended experience of the Co. exhibits features partaking of the character of the mort. prevailing amongst the assured of either sex when taken separately. The following T. shows the rate of mort. p.c., and the expc. of life, as before; the numbers for each sex being blended, and the results of other T. being added for the purpose of comparison.

Here is the T. referred to :

Mortality p.c.				Expectation of Life.			
Ages.	<i>Eagle</i> , Males and Females.	<i>Northampton</i> T.	<i>Carlisle</i> T.	Ages.	<i>Eagle</i> , Males and Females.	<i>Northampton</i> T.	<i>Carlisle</i> T.
20—29	1'10	1'56	'76	20	38'1	33'4	41'5
30—39	1'26	1'86	1'05	30	32'1	28'3	34'3
40—49	1'71	2'38	1'42	40	25'7	23'1	27'6
50—59	2'52	3'32	1'86	50	19'6	18'0	21'1
60—69	4'55	4'91	4'08	60	13'7	13'2	14'3
70—79	9'64	9'19	8'80	70	8'6	8'6	9'2

A slight inspection of these numbers will serve to confirm, so far as the *Eagle* Ins. Co. is concerned, the truth of the obs. with which I set out—viz. that every so. would prob. be found to have an "experience" more or less peculiar to itself. It will be seen that although not differing very materially towards the close of life from the experience of the offices [*Experience* T. No. 1], and from the *Northampton* T., the *Eagle* experience is at the commencement unlike any other. At that period it appears to occupy a place between the *Northampton* T. and the *Carlisle*, and maintains the same position till the later years of life, when it coincides with and ultimately exceeds the rate indicated by the former. Throughout the influence of the female mort. is perceptible: it serves to exaggerate that amongst the male portion at the earlier ages, and to diminish it at the later ones; bringing it thus into nearer parallelism with the old *Northampton* T., although still leaving a considerable margin between them. All these peculiarities, however, will be more readily perceived by means of the diagram which, bearing in mind the often quoted precept as to matters "*oculis subjecta fidelibus*," I have appended to this paper. In this will be seen the curves expressing the mort. p.c. prevailing amongst the male and female lives when taken separately, and the one denoting the graduated rate found to obtain amongst the whole body when blended together. As this last represents the general experience of the Co., and as it is important to show that the ratios which it indicates have been correctly deduced, I now proceed to that part of the subject.

We do not propose to follow Mr. Jellicoe here. The processes employed in the con-

struction and graduation of the T. are set forth with much clearness [MORT. T., CONSTRUCTION OF]; and acknowledgments are rendered to Mr. A. H. Bailey and Mr. J. L. Oliver for their share of the labour. Finally, we reach the following T. of adjusted results—the sexes combined.

MORT. T.—*Eagle Experience Adjusted—sexes combined.*

Age.	Living.	Dying.	Mean duration of life, (Expectation.)	Mortality p.c. p.a.	Value of an annuity.	Ann. prem. to insure £100.
20	9215	95	37'99	1'032	17'410	1'586
21	9120	95	37'39	1'046	17'295	1'619
22	9025	96	36'77	1'060	17'176	1'655
23	8929	96	36'16	1'075	17'055	1'692
24	8823	96	35'59	1'090	16'951	1'725
25	8727	97	34'98	1'106	16'823	1'765
26	8630	97	34'37	1'122	16'692	1'806
27	8533	97	33'75	1'137	16'557	1'850
28	8436	97	33'13	1'153	16'417	1'896
29	8339	97	32'51	1'169	16'273	1'943
30	8242	98	31'89	1'186	16'123	1'994
31	8144	98	31'27	1'201	15'970	2'047
32	8046	98	30'64	1'218	15'811	2'103
33	7948	98	30'01	1'235	15'646	2'161
34	7850	98	29'38	1'254	15'475	2'223
35	7752	99	28'75	1'271	15'297	2'290
36	7653	99	28'11	1'288	15'115	2'359
37	7554	99	27'48	1'306	14'925	2'433
38	7455	99	26'83	1'325	14'729	2'511
39	7356	100	26'19	1'365	14'524	2'595
40	7256	103	25'54	1'422	14'313	2'685
41	7153	106	24'90	1'481	14'100	2'776
42	7047	109	24'27	1'540	13'884	2'872
43	6938	111	23'64	1'601	13'667	2'971
44	6827	114	23'02	1'664	13'444	3'077
45	6713	116	22'40	1'731	13'220	3'186
46	6597	119	21'79	1'799	12'990	3'302
47	6478	121	21'18	1'872	12'758	3'423
48	6357	124	20'57	1'945	12'521	3'549
49	6233	126	19'97	2'023	12'281	3'683
50	6107	128	19'37	2'104	12'035	3'825
51	5979	131	18'78	2'188	11'785	3'976
52	5848	133	18'18	2'274	11'531	4'134
53	5715	135	17'60	2'364	11'271	4'303
54	5580	137	17'01	2'459	11'005	4'483
55	5443	139	16'43	2'556	10'734	4'676
56	5304	141	15'84	2'659	10'456	4'882
57	5163	143	15'26	2'763	10'171	5'105
58	5020	144	14'68	2'874	9'879	5'345
59	4876	146	14'10	3'000	9'577	5'609
60	4730	150	13'52	3'172	9'268	5'892
61	4580	157	12'95	3'419	8'954	6'200
62	4423	163	12'39	3'686	8'643	6'524
63	4260	169	11'84	3'973	8'333	6'869
64	4091	175	11'31	4'282	8'024	7'235
65	3916	181	10'80	4'616	7'718	7'625
66	3735	186	10'30	4'976	7'416	8'036
67	3549	190	9'81	5'364	7'116	8'475
68	3359	194	9'34	5'781	6'820	8'942
69	3165	197	8'88	6'232	6'527	9'439
70	2968	199	8'43	6'718	6'239	9'968
71	2769	200	8'00	7'241	5'955	10'531
72	2569	200	7'59	7'807	5'675	11'134
73	2369	199	7'19	8'415	5'400	11'779
74	2170	197	6'80	9'068	5'131	12'464
75	1973	193	6'43	9'776	4'870	13'190
76	1780	188	6'07	10'538	4'613	13'970
77	1592	181	5'73	11'360	4'365	14'793
78	1411	173	5'40	12'244	4'121	15'681
79	1238	163	5'08	13'199	3'885	16'624
80	1075	153	4'78	14'230	3'653	17'645

Age.	Living.	Dying.	Mean duration of life. (Expectation.)	Mortality p.c. p.a.	Value of an annuity.	Ann. prem. to insure £100.
81	922	141	4'49	15'330	3'430	...
82	781	129	4'21	16'530	3'211	...
83	652	116	3'94	17'820	3'001	...
84	536	103	3'68	19'210	2'796	...
85	433	90	3'44	20'710	2'599	...
86	343	77	3'21	22'320	2'413	...
87	266	64	3'00	24'060	2'236	...
88	202	52	2'79	25'930	2'062	...
89	150	42	2'59	27'950	1'888	...
90	108	33	2'40	30'130	1'726	...
91	75	24	2'23	32'500	1'585	...
92	51	18	2'05	35'010	1'425	...
93	33	12	1'89	37'741	1'290	...
94	21	9	1'69	40'680	1'108	...
95	12	5	1'58	43'851	1'017	...
96	7	3	1'36	47'268	'814	...
97	4	2	1'00	50'951	'481	...
98	2	2	'50	...	...	...

In the *Assu. Mag.* No. 6, p. 359, will be found the three leading cols. of this T., graduated on a method different from that employed by Mr. Jellicoe.

Mr. A. G. Finlaison offers the following obs. on this T.:

The experience as to the duration of life is, to use Mr. Jellicoe's own words, traced from year to year for a period on the average for about 8½ years from the time of their admission. This is but a brief period, and the effect of its restricted span on the result is prob. not altogether trivial. But the information thus pub. is of much value nevertheless; and the system adopted for its collection being that pursued by Mr. Galloway, in his report of the *Amicable Soc.*'s mortality, attaches additional weight to the observation, although it needed perhaps no further recommendation than that of proceeding from Mr. Jellicoe's hand. It has the additional merit of giving the mortality for each sex separately as well as combined.—*Rep. on Gov. Annu.* 1860.

The following T., showing the relative intensity of diseases amongst the lives ins. in the *Eagle*, compared with that affecting the gen. pop. of Lond., was given in the *Assu. Mag.* vol. v. p. 349:

CLASS OF DISEASE.	REGISTRAR-GENERAL, London, 1845-7.		EAGLE EXPERIENCE.	
	Numbers dying of diseases specified.	Relative intensity.	Numbers dying of diseases specified.	Relative intensity.
Zymotic	32,907	20'80	286	14'16
Diseases of Variable Seat	15,821	10'00	204	10'10
" Respiratory Organs	47,465	30'00	428	21'19
" Brain, etc.	23,935	15'13	373	18'47
" Heart and Blood Vessels	5625	3'55	127	6'29
" Organs of Digestion	12,781	8'08	193	9'55
" Kidneys	1655	1'05	37	1'83
" Organs of Generation... ..	2002	1'27	39	1'93
" Bones, etc.	1389	0'89	8	0'39
" Skin, etc.	452	0'29	13	0'64
Old Age	8332	5'27	149	7'38
Violence, etc.	5003	3'16	48	2'38
Not Certified	827	0'51	115	5'69
	158,194	100'00	2020	100'00

In 1874 Mr. Geo. Humphreys, M.A., the Act. of the Co., read a paper before the Inst. of Act. *On the Practice of the Eagle Co. with regard to the Assurance of Lives classed as Unsound, and on the Rates of Mort. prevailing amongst the lives so classed, assured with them during the Sixty-three years ending 30 June, 1871.* The author sets forth the circumstances which have led to the investigation as follows:

Many years having elapsed since the *Eagle* Ins. Co. first undertook to issue pol. of assu. upon unsound lives, and some doubts having arisen as to the way in which the funds of the So. had been affected by such transactions, the directors decided that a thorough investigation should be made into the bus. connected therewith, with the view of obtaining not only a record of the past, but also, if possible, of estab. a guide for the future, and I now have the pleasure, with their permission, of making public the results of that investigation.

The history of this branch of the Co.'s bus. is stated as follows :

Assu. upon unsound lives, in the full acceptance of the term, do not appear to have been effected in the early years of the So.'s existence; only 8 cases, and those of persons liable to gout, having been accepted during the period from 1808 to 1813. In the last-named year a pol. was effected on the life of a person afflicted with hernia, and from that time to the year 1824, when the subject had attracted more serious attention, but few assu. on unsound lives, other than those suffering from gout and hernia, were carried out. For some years past, however, the principle, as is well known, of assuring unsound lives at an increased rate of prem., has been more and more recognized and acted upon, and risks of that class now form a not unimportant section of the bus. of many life assu. cos.

The total number of pol. upon unhealthy lives from the year 1813 up to the end of June, 1871, effected in the *Eagle*, and in the several cos. which have been amal. with it, amounted, exclusive of lapsed, surrendered and term-expired pol., to 2094, of which 723 had become claims. Having had a full account of all these cases extracted from the records of the office, and (with the assistance of one of the Co.'s medical advisers, Dr. Ogle) arranged the different *Causes of Addition* under the following seven heads, viz.—(1) gout; (2) hernia; (3) organs of circulation; (4) organs of respiration; (5), obesity; (6) intemperate habits; (7) family hist. or general want of robustness, the author proceeds to classify the cases accordingly for every decade of life, with regard to each *cause of addition* as well as for the same periods combining all causes. Here is the T.:

Average additions which have been made to the true ages in cases of assu. upon lives classed as unsound. From 1808 to June, 1871.

Age at Entry.	CAUSES OF ADDITION.																Total Number of Cases.	Average Addition.
	Gout.		Hernia.		Organs of Respiration.		Organs of Circulation.		Obesity.		Intemperate Habits.		Family Hist. or General want of Robustness.		Miscellaneous Affections.			
	No. of Cases.	Average Add. Yrs.	No. of Cases.	Average Add. Yrs.	No. of Cases.	Average Add. Yrs.	No. of Cases.	Average Add. Yrs.	No. of Cases.	Average Add. Yrs.	No. of Cases.	Average Add. Yrs.	No. of Cases.	Average Add. Yrs.	No. of Cases.	Average Add. Yrs.		
Under 20	...	...	3	4	...	...	...	...	1	10	...	...	14	10	26	10	44	9
20 " 29	16	6	64	4	60	10	16	8	...	...	15	12	187	8	242	8	600	8
30 " 39	71	5	157	3	118	7	33	7	12	6	42	9	192	6	393	7	1018	6
40 " 49	170	4	133	3	69	6	27	7	17	7	41	6	132	6	293	6	882	5
50 " 59	123	3	88	3	31	5	19	6	12	4	17	5	43	5	120	5	453	4
60 " 69	38	2	29	2	3	5	6	4	3	4	3	4	11	4	45	4	138	3
70 & above	...	...	7	2	...	...	3	6	...	...	1	1	...	...	1	3	12	3
	418	4	481	3	281	7	104	7	45	6	119	7	579	6	1120	6	3147	6

The author remarks on this T.:

It will be observed that I have also added an 8th section, entitled *Miscellaneous Affections*. This arose in consequence of the *Causes of Addition*, which could not be included under any of the above heads, being rather numerous, and the number of cases appertaining to each being far too few to allow of their being grouped under separate heads with any real advantage, and also from the reasons of the addition having been, in very many of the earlier instances—particularly in the amal. cos.—omitted from the records. These last were accordingly classed under the head of “*No Information*”; and they, together with the other cases referred to, were collected under the above title of *Miscellaneous Affections*; and, although they could not be of immediate service with regard to any special class of disease, yet as their number would affect the general result, it was quite necessary that they should be taken into account in the inquiry.

We now reach the results:

Having made a financial investigation with respect to the 2094 cases alone, I found that, on the whole, the ordinary surplus had been realized, and this result might, perhaps, of itself have been considered sufficient to warrant, without further research, a continuance of the practice hitherto pursued by the Co., supported as it is by the length of time over which that practice has extended; but as the safety of such a course could not upon that investigation alone be properly asserted, I have thought it advisable to pursue the subject still further, and by the construction of the usual Mort. T., to ascertain with technical precision to what extent the results already obtained might be trusted as a guide for future reference.

In order accurately to show the past working of the office, the author also had extracts made of the particulars of all the pol. on lives of this class which had either *lapsed* or been *surrendered*, or the term of which had *expired*; and then, combining these results with those previously obtained, he drew up a T., “which represents the conditions as regards provision against extra risk upon which unsound lives are at present assured in the *Eagle*.” The total number of cases under obs. is thus brought up to 3147, as shown in the T. just given.

Mr. Humphreys explains that in the preparation of his preliminary T. he has availed himself of the formulæ employed by Mr. Jellicoe in obtaining the general rates of mort. of the Co. in 1854. We then reach the following Mort. T.—a T. of *unadjusted* results, the cols. of which we have slightly changed from their orig. order for the sake of

uniformity with the other Mort. T. in this work. We have also included the comparisons between the *exp.* under this T. and the *Carlisle* T. and the *Experience* T. (No. 1). It is most important to note an explanation of the author respecting this T.:

It will be observed that I have made use of the office ages in this investigation. I did this, considering that by such a course it would be more readily shown whether the several additions which had been made to the true ages were sufficient for the purpose, seeing that, if that were the case, the "Expectations" deduced therefrom would in all material respects fairly bear comparison with those obtained from other T. of mort. These "Expectations" are, as it will be seen, unadjusted, but they are so nearly equal to the "Experience" *exp.* . . . that I have not deemed it necessary to enter upon the process of adjustment.

TABLE D.—*Eagle Unsound Lives, to 30th June, 1871—Unadjusted.*

Office Age.	Number who complete the age opposite.	Number who die in their next year.	Mort. p.c. p.ann.	Mean duration of after life. (Expec.)	Carlisle Expec.	Experience No. 1 Expec.	Office Age.
23	10,000	225	2'247	40'52	...	...	23
24	9775	163	1'667	40'44	...	...	24
25	9612	...	...	40'12	...	...	25
26	9612	...	...	39'12	...	...	26
27	9612	...	...	38'12	...	...	27
28	9612	...	...	37'12	...	...	28
29	9612	37	0'386	36'12	...	...	29
30	9575	56	0'580	35'26	34'34	34'43	30
31	9519	65	0'686	34'46	...	...	31
32	9454	69	0'727	33'70	33'03	33'01	32
33	9385	44	0'469	32'93	...	...	33
34	9341	35	0'373	32'09	31'68	31'58	34
35	9306	77	0'829	31'21	...	...	35
36	9229	85	0'925	30'47	30'32	30'15	36
37	9144	53	0'583	29'75	...	...	37
38	9091	49	0'540	28'02	28'96	28'72	38
39	9042	67	0'739	28'07	...	...	39
40	8975	103	1'154	27'28	27'61	27'28	40
41	8872	141	1'588	26'51	...	...	41
42	8731	114	1'307	26'01	26'34	25'84	42
43	8617	91	1'052	25'35	...	...	43
44	8526	93	1'085	24'61	25'09	24'40	44
45	8433	94	1'120	23'88	...	...	45
46	8339	128	1'556	23'14	23'82	22'79	46
47	8211	134	1'626	22'51	...	...	47
48	8077	112	1'390	21'86	22'50	21'56	48
49	7965	117	1'469	21'16	...	...	49
50	7848	112	1'430	20'47	21'11	20'18	50
51	7736	101	1'304	19'75	...	...	51
52	7635	130	1'698	19'01	19'68	18'82	52
53	7505	162	2'162	18'33	...	...	53
54	7343	191	2'611	17'73	18'28	17'50	54
55	7152	202	2'827	17'18	...	...	55
56	6950	171	2'692	16'67	16'89	16'22	56
57	6779	167	2'456	16'08	...	...	57
58	6612	172	2'598	15'47	15'55	14'97	58
59	6440	196	3'047	14'87	...	...	59
60	6244	183	2'924	14'32	14'34	13'77	60
61	6061	147	2'430	13'74	...	...	61
62	5914	122	2'055	13'07	13'31	12'61	62
63	5792	135	2'335	12'33	...	...	63
64	5657	173	3'060	11'61	12'30	11'51	64
65	5484	247	4'505	10'96	...	...	65
66	5237	246	4'694	10'46	11'27	10'46	66
67	4991	200	4'010	9'95	...	...	67
68	4791	295	6'154	9'34	10'23	9'47	68
69	4496	368	8'188	8'92	...	...	69
70	4128	271	6'569	8'67	9'18	8'54	70
71	3857	180	4'665	8'27	...	...	71
72	3677	209	5'677	7'63	8'16	7'67	72
73	3468	234	6'742	7'06	...	...	73
74	3234	297	9'185	6'55	7'33	6'86	74
75	2937	308	10'266	6'15	...	...	75
76	2629	207	7'884	5'80	6'69	6'11	76
77	2422	273	11'253	5'26	...	...	77
78	2149	340	15'842	4'86	6'12	5'42	78

Office Age.	Number who complete the age opposite.	Number who die in their next year.	Mort. p.c. p.ann.	Mean duration of after life. (Expec.)	Carlisle Expec.	Experience No. & Expec.	Office Age.
79	1809	295	16'309	4'68	...	...	79
80	1514	230	15'217	4'50	5'51	4'78	80
81	1284	235	18'310	4'21	...	...	81
82	1049	176	16'822	4'04	4'93	4'18	82
83	873	145	16'667	3'75	...	...	83
84	728	208	28'571	3'40	4'39	3'62	84
85	520	189	36'364	3'56	...	...	85
86	331	76	22'857	4'31	3'90	3'10	86
87	255	51	20'000	4'44	...	...	87
88	204	51	25'000	4'43	3'59	2'59	88
89	155	...	...	4'67	...	...	89
90	155	16	10'526	3'67	3'28	2'11	90
91	139	43	30'769	3'03	...	...	91
92	96	16	16'667	3'17	3'37	1'67	92
93	80	18	...	2'70	...	...	93
94	62	16	...	2'34	3'53	1'28	94
95	46	14	...	1'98	...	...	95
96	32	12	...	1'63	3'46	'99	96
97	20	9	...	1'30	...	...	97
98	11	7	...	'92	3'07	'75	98
99	4	3	...	'75	...	...	99
100	1	1	100'000	'50	2'28	...	100

Finally the author says :

It is a matter of considerable satisfaction that the result obtained from this more precise and exhaustive investigation has quite corroborated the financial conclusions previously deduced ; and considering the great uncertainty which has prevailed up to a late period as to the effect of specific diseases on the duration of human life, it is not a little remarkable that the purely empirical practice resorted to by the Co. should have so closely met the exigencies of the case. It will be seen by T. D how nearly the additions made have placed the sound and unsound lives on the like footing, and an examination of the curves shown in T. E will serve still further to illustrate this very proximate identity.

The paper and T., of which we have only given an outline, will be pub. in extenso in *Assu. Mag.* (vol. xviii.). We regard it as an interesting add. to the information we now have on the subject of DISEASED LIFE INS.; and we regret that the paper was not prepared in time to enable us to review it under that head.

EAGLE AND ALBION INS. CO.—After the trans. of the bus. of the *Albion* to the *Eagle* in 1858, the Co. was for a time designated by the joint names.

EAGLE AND PALLADIUM INS. CO.—After the amalg. of the bus. of the *Palladium* with the *Eagle* in 1856, the office was designated for a time by the joint title.

EAGLE AND PROTECTOR LIFE ASSU. ASSO.—In 1847, on the occasion of the bus. of the *Protector* L. being united with the *Eagle*, the above title was assumed for a short time. [EAGLE LIFE, 1847.]

EAGLE AND UNITED EMPIRE LIFE ASSU. ASSO.—After taking over the bus. of the *United Empire* in 1826, the *Eagle* Co. was for several years designated by the joint title. [EAGLE LIFE, 1826.]

EAGLE, PHILIP A., pub. in 1851, *Life Assu. Manual ; comprising the principles of assu., life contingencies, modes of investigation and division of profits ; the applicability of life assu. to investment ; with comprehensive tabular rates of prem. of the principal metropolitan assu. offices, and their date of incorp., tables of mort. and value of annu. on lives.* This work purports to popularize the principles and practice of life ins. It is, however, written in a very stilted and unpopular style ; for instance, the first sentence in chap. I contains 394 words without a full stop—a distinction which could prob. be claimed for no other work extant. The book contains some useful tabular matter.

EAMES, T. R., was Man. Director of *Carriage Accident* Ins. Co. in 1871 ; and was Sec. of *Imperial Marine* in 1872.

EARLY DEATHS.—The large proportion of early deaths, *i.e.* deaths during the early years of life, will be spoken of and illustrated under INFANT MORT. The diseases which most beset youth will be spoken of under YOUTH, DISEASES OF. Next in order come the diseases of early manhood. In these considerable fluctuations are shown by various Mort. T.; this will be spoken of in its scientific aspect under MORT., LAW OF. Regarding the social aspect resulting from premature deaths, we may quote the following eloquent passage from the *Census Abstract*, 1851 :

The prolongation of the life of the people must become an essential part of family, municipal, and national policy. Although it is right and glorious to incur risk, and to sacrifice life for public objects, it has always been felt that length of days is the measure, and that the completion by the people of the full term of natural existence is the groundwork, of their felicity. For ultimately death is a great evil. What is so bitter as the premature death of a wife—a child—a father? What dashes to the earth so many hopes, breaks so many sweet alliances, blasts so many auspicious enterprises, as the

unnatural death? The poets, as faithful interpreters of our aspirations, have always sung that in the happier ages of the world this source of tears shall be dried up. Science, indeed, can scarcely apprehend all the results, and all the modifications of society, that would flow from the extension of life to its natural limit, nor perceive how all the violence, impurity, ignorance, and innumerable diseases which now destroy men can be dispersed. [LONGEVITY.]

EARMARK.—A note for identification. Hence the term that certain securities, deeds, etc. have been "Earmarked." Coin cannot in the ordinary sense be earmarked.

EARNED PREMIUM.—That portion of an ann. or other prem. which has been earned by effluxion of time: as a prem. paid for one year in advance is earned to the extent of one half when six months from the date of the prem. falling due have passed. The remaining half is **UNEARNED PREM.** The returns of ins. cos.—more particularly fire and marine—made to the State Ins. Departments in the U.S. mostly distinguish between earned and unearned prems. And in all ins. cos. this element must arise for consideration in valuations for transfer, etc.

EARNED PREMIUM, PLAN OF DISTRIBUTING SURPLUS.—This is a method propounded by Mr. John F. Entz, of N.Y., as "the true mode for the division of profits," in opposition to the "contribution plan." We shall give a full outline of his plan under **SURPLUS, ASCERTAINMENT AND DISTRIBUTION OF.**

EARNST MONEY.—It was the practice of the early fire offices to make a certain preliminary charge on a proposal for ins., to cover expense of survey, stamps on policies, etc., etc. [UNION FIRE, 1714.] The practice, in a modified form, is continued to the present day: a person on proposing to ins. is generally required to make a payment on account; but this is allowed when the ins. is completed. [DEPOSIT MONEY.]

EARNINGS, INS. OF.—The question of insuring "earnings" comes before underwriters in various forms, and presents features in some respects differing from the ins. of profits. [PROFITS, INS. OF.] We shall speak of this branch of bus. briefly under its several heads.

Marine.—The earnings of a ship by carrying the cargo—i.e. the *Freight*—is a frequent and generally recognized subject of ins. [FREIGHT, INS. OF.] [PROFITS, INS. OF.] The wages, i.e. the earnings, of the seamen cannot be legally insured.

Fire.—The ins. of *Rent*, which is the earnings of property, is a recognized branch of Fire Ins. in Gt. Brit. Trade profits are not usually insured; although several attempts have been made to estab. such a bus. Mr. Griswold, writing of the practice in the U.S., says, "One having an insurable interest in property may insure also the respective earnings or profits likely to grow out of that property; but these interests must be covered specifically as such."

Life.—According to the law as rendered in the U.S., a father has an insurable interest in the earnings of his son up to the age of 21; and several cases have come before the Courts there confirmatory of this view. We do not remember any similar case before the English Courts. In the case of *Loomis v. Eagle Life and Health Ins. Co.*, before the Supreme Court in 1856, it is laid down as an estab. principle—a father, being entitled to the earnings of his minor son, has an insurable interest in his life.

The question of insurable interest in earnings has arisen in another shape in the U.S., viz. under what are there known as "California contracts." During the excitement consequent upon the discovery of gold in California, various arrangements were made in the nature of *quasi-partnerships*, according to which persons agreed to furnish means to enable others to go to California and dig gold, and were to be reimbursed by a share of the earnings of the gold-diggers. These arrangements were sometimes individual ones between two persons, one of whom furnished the money, while the other went in pursuit of gold; and sometimes they took the form of an asso. with shares. *Whatever form they took, they have always been held to give to the person advancing money an insurable interest in the lives of those going to dig gold.*—Bliss, *Law of Life Ins.*, etc., 1872. [INSURABLE INT.]

Health.—The amount insured under a Health or Sickness pol. should bear only a certain fixed proportion to the ordinary earnings of the person insured. *It should never pay a person to be invalidated.*

Accident Ins.—The same rule should apply.

EARNSHAW, WILLIAM, pub. in 1818: *A Digest of the Laws from 12 Charles II. to 58 Geo. III. relating to Shipping, Navigation, Commerce, and Revenue in the British Colonies, in America, and the West Indies*, etc.; and in 1820: *A Digest of Acts relating to Shipping, Navigation, and Commerce*. These works at one period were held in some repute.

EARTH.—It is not a little remarkable that the lesson which we are now just beginning to learn from practical experience, namely, that the earth is the great and natural disinfectant, was well known in the earlier ages, and was always before us, if we had only understood its teachings (see *Deuteronomy* xxiii. 12-14): "Thou shalt have a place also without the camp, whither thou shalt go forth abroad: And thou shalt have a paddle upon thy weapon; and it shall be, *cumque sederis*, thou shalt dig therewith, and shalt turn back and cover that which cometh from thee: For the Lord thy God walketh in the midst of the camp, to deliver thee, and to give up thine enemies before thee; therefore shall thy camp be holy: that He see no unclean thing in thee, and turn away from thee." [PUBLIC HEALTH.] [SANITARY LAWS.]

EARTH BATH.—A remedy consisting literally of a bath of earth, used on the Continent of Europe.

EARTH CLOSETS.—A sanitary appliance of modern invention, brought into popular use mainly through the efforts of the Rev. Henry Moule.

EARTHQUAKES.—It is believed by physical geographers that there are no portions of the earth's surface, whether covered by land or water, which are not more or less subject to earthquakes; and records of their destructive effects have been transmitted to us through every age. Since the earthquakes which destroyed Herculaneum and Pompeii, A.D. 63, there have prob. been no earthquakes equal in severity to those which ravaged the world during the last century.

Technically an earthquake consists of undulations in the external film or crust of the earth, produced by some force acting from within, tending by a sudden explosion to rend asunder the surface: this result being prevented more or less completely by the elasticity of the matter lying above the seat of disturbance. The result is the production of a wave, which in its transmission along the surface originates the phenomena in question. Earthquakes are usually preceded by a general stillness in the air, and an unnatural agitation of the waters of the ocean and lakes. With the shock—which generally lasts only about one minute, but is frequently followed by several others in rapid succession—comes a heaving of the ground, sometimes perpendicularly up, but more generally from side to side, producing the wave-like motion of which we have just spoken. During the shocks sometimes large chasms are made in the ground—hence their greatest destruction to property.

Anaxagoras supposed (B.C. 435) that earthquakes were produced by subterraneous clouds bursting into lightning, which shook the vaults that confined them. Kircher, Des Cartes, and others supposed that there were vast cavities under ground which have a communication with each other, some of which abound with water, others with exhalations arising from inflammable substances, as nitre, bitumen, sulphur, etc. Dr. Stukeley and Dr. Priestley attributed earthquakes to electricity. They are probably due to steam generated by subterraneous heat.—*Vincent.*

Mrs. Somerville states that about 255 earthquakes have occurred in the Brit. Isles; all slight. To avoid the effects of a shock predicted by a madman for 8 April, 1750, thousands of persons, particularly those of rank and fortune, passed the night of the 7th in their carriages, and in tents, in Hyde Park.

An elaborate catalogue of earthquakes from B.C. 1606 to A.D. 1842, with commentaries on the phenomena by R. and J. W. Mallet, was pub. by the Brit. Asso. in 1858. In 1860 Mr. J. Brown estimated the velocity of their propagation at between 470 and 530 feet per second. In the Rep. of the Census Commissioners for Ireland, 1851, there is an interesting chronological T. of the earthquakes which have been felt in Ireland from the earliest times (V. S. i. p. 334).

The wonderful influence which earthquakes have exercised in retarding the growth of pop. in various parts of the globe can hardly be estimated by any one who has not paid more than casual attention to the subject. As an instance: in the course of 75 years, from 1783 to 1857, the kingdom of Naples lost at least 111,000 inhabitants by the effects of earthquakes, or more than 1500 p.a. out of an average pop. of 6,000,000!

There is another and scarcely less direct influence attaching to earthquakes—they long have been, and indeed still are, regarded by many as the certain forerunners of plagues, famines, and other pestilences. In support of this view Scripture authority is quoted. Thus, in the 14th chap. of the Book of Zechariah it is prophesied that an earthquake shall precede the plague which the prophet foretold should destroy the enemies of Jerusalem; and again, in the Gospel of St. Luke, xvi. 11: "And great earthquakes shall be in divers places, and famines, and pestilences." History likewise bears similar testimony. When the plague broke out at Athens in the winter of the 5th year of the Peloponnesian War (B.C. 425), Thucydides mentions that it was followed in the succeeding spring by earthquakes. In our own country it is recorded that fearful earthquakes, fiery meteors, and terrestrial commotions of all descriptions preceded the plague of 1348. Hecker, in his *Epidemics of the Middle Ages*, says that an eruption of Vesuvius took place in 1506, the year of the 2nd visitation of the sweating sickness in England—the preceding year had been characterized by the *Petechial fever* in Italy. Coincident with the 3rd visitation of the sweating sickness in England, 1517, an earthquake was severely felt at Tübingen, Nordlingen, and Cala, during a violent storm, by which 2000 houses and a church were destroyed at Nordlingen. For many further details of this character, see Haviland's *Climate*, Bascombe's *Epidemic Pestilences*, etc., 1855. [COMETS.] [PLAGUE.]

EARTHQUAKES, INSURANCE AGAINST.—Soon after the destructive series of earthquakes which occurred in various parts of the world in 1868, suggestions were put forward—as we fancy many suggestions have previously been put forward—that either the existing ins. cos. should add to their bus. a branch for insuring against the destruction of property resulting from earthquakes, or that cos. should be specially formed for this particular purpose. The suggestion did not find favour—can we be surprised? What reliable statistics could be obtained in the way of data? What selection could be exercised by the office, beyond the construction of the building? and would the owners of buildings specially constructed to resist the influence of earthquake shocks—and there are many such, some built with very thick brick or stone walls, but more generally with a strong

timber framework, filled in with rubble, etc.—would such persons insure? Again, no co. could afford to take more than a certain number of risks in districts known to be liable—in which indeed earthquakes recur again and again. Would persons in other and more favoured districts be found to insure, and so make up the average? We think not. The scheme appears impracticable from every point of view.

No one can approach the subject of Ins. against earthquakes without his mind at once reverting to Mark Twain's famous "Inquiry about Insurances." He is supposed to be contemplating insuring against accidents; and these are the inquiries which he, in imagination, addresses to the manager of the co.:

Do you allow the same money on a dog-bite that you do on an earthquake? Do you take special risks for specific accidents?—that is to say, could I, by getting a pol. for dog-bites alone, get it cheaper than if I took a chance in your whole lottery? And if so, and supposing I got insured against earthquakes, *would you charge any more for San Francisco earthquakes than for those that prevailed in places that are better anchored down?* And if I had a pol. on earthquakes alone, I couldn't collect on dog-bites, may-be, could I? If a man had such a pol., and an earthquake shook him up and loosened his joints a good deal, but not enough to incapacitate him from engaging in pursuits which did not require him to be tight, wouldn't you pay him some of his pension?

EASEMENT.—In law, a privilege, service, or convenience which one neighbour has of another, by charter, prescription, custom, or usage,—as a right of way, a watercourse, or a drain.

EAST OF ENGLAND MUT. LIFE ASSU. SO.—Founded at Chelmsford, in Essex, in 1850, on the basis of a mut. asso., but with a guarantee cap. of £40,000, in 20,000 shares of £20; £5 paid up. The immediate founder of the Asso. was Mr. Edward Butler, but with him were associated many influential gentlemen in the eastern counties. The So. carried on a small but most respectable bus. In 1855 it took over the bus. of the *London Mercantile* (founded 1853). At the close of 1857 the general bus. of the Asso. consisted of 1409 pol., viz. 1327 life pol., insuring £355,885, and 82 contingent, deferred, and immediate annu., representing £3397; the whole producing in ann. premis. £12,244. There were also some industrial pol. in force, insuring £19,545, and yielding in ann. premis. £717. Early in 1858 proposals were made to unite this office with the *Reliance Mut.* on terms of mut. advantage; and this arrangement was shortly afterwards carried out. The guarantee shares were paid off with a bonus of 25 p.c. The Asso. was one of the first which undertook "Building So. Ins."

EAST INDIA CO.—A famous asso., orig. estab. by English merchants, under Royal Charter, in 1600, for prosecuting trade between England and India. Its charter was renewed on various occasions; and it obtained the exclusive right of carrying goods and merchandise to and from British India. In 1813 trade with India was thrown open. The Co. is to be dissolved as from 1 June, 1874. [BOTTOMRY.] [INDIA.] [MARINE INS., HIST. OF.]

EAST KENT FIRE OFFICE.—See CANTERBURY AND EAST KENT FIRE OFFICE.

EAST LONDON LIFE, FIRE, AND ACCIDENT INS. CO.—This Co. was projected in 1865; Mr. T. G. Fellowe being the first regis. promoter. The authorized cap. was one million—but the project did not find favour.

EAST OF LONDON MUT. JOINT-STOCK INS. CO.—A project under this title was set on foot in 1849, but it did not go forward.

EAST OF SCOTLAND LIFE ASSU. CO.—Founded at Dundee, in 1844, with an authorized cap. of £250,000, in 25,000 shares of £10, with power to increase. No proprietor was to hold less than 10 or more than 500 shares.

The prosp. of the Co. stated that its pol. were "unqualified by any conditions such as are commonly inserted in the pol. of proprietary cos., limiting the liability of the co. thereon." "The rates of this Co. have been calculated from the average rate of mort. of the U.K., as derived from the gen. census of the pop. taken in June, 1841." [ENGLISH T. (No. 1).] A "very large proportion of the entire profits of the Co.'s bus." was to be appropriated to parti. pol.-holders; but the exact proportion was not defined. The first investigation was to be in 1852. But the leading feature of the Co. was its "Progressive Life Assu.," thus set forth in its prosp.:

In life assu., as in other social inst., it will ever be found that the principles peculiar to each are brought out with more simplicity, and become in proportion more generally applicable to the wants of the community, according as the public advances in knowledge of those principles, and consequently appreciates more extensively the peculiar advantages to be derived from them.

The system of life assu. by equal ann. payments, extensively adopted at present, although well adapted for affording to the public the benefits of assu., is felt, in many cases, to be liable to objections which must operate unfavourably by deterring certain classes of the community from availing themselves of the advantages which might have been otherwise secured to them.

The objections which have been urged against the present system proceed for the most part from the fact that the assured, by the contract of assu. being bound to pay to the assurer a yearly sum during the remainder of his life, is exposed to this misfortune, that should it happen from alteration in his circumstances or other causes, that he becomes unable to meet the ann. premis. as they become due, or omits to pay them, the pol. must either be abandoned in the hands of the assurers at a considerable and unnecessary sacrifice on the part of the assured, or otherwise be declared as forfeited to the assurers, along with all the payments made thereon.

Another source of objections to the present system proceeds from the circumstance that by that system the assured are required, during the early part of their assurances, to make a much larger outlay than is sufficient to pay for the risk run by the assurers on their account. Such a circumstance must deter many from assuring whose present limited means will not admit of their making the necessary payments.

The directors of the E. of S. L. Assu. Co., actuated by the anxious desire which they entertain of

adapting the principles of life assu. to the wants of all classes, have now adopted into the bus. of the co. an entirely new and important system of life assu., which they confidently believe will fully obviate the above-mentioned and other objections urged against the present system, and at the same time afford to the community the whole advantages to be derived from the principles of life assu., *with a simplicity and an economy which have not been attained by any previous scheme.*

Then we have a statement of the "principles of the new system," as follows:

1st. Parties whose lives are approved of by the Co. will receive pol. of assu. for the whole term of life in the usual form; but instead of being charged with equal ann. prems. for the whole of life, they will only be charged with limited ann. prems., progressively increasing from year to year, and computed from the most approved obs., so as to repay the Co. for the risk undertaken by them on account of the assured, and no more.

2nd. A person assured under this system, who, during the currency of his pol., from change of circumstances or otherwise, may be induced to prefer the ordin. mode of assu., will be entitled to have his progressive life pol. exchanged at any period for a pol. on the usual equal ann. system; the assured paying, in that case, the equal ann. prem. applicable to the year of life at which the change may be made. In effecting this change the assured will be put to no expense by the office, nor subjected to the trouble and inconvenience of any further medical or other certificate of health.

3rd. The Co. will also, at the desire of the assured, at any time cancel any part of the amount assured by their pol. under the progressive system; the assured paying afterwards only the prem. applicable to the remainder. The assured are thus placed in the advantageous position, peculiar to this system, of being able to adapt the amount of their assu. from time to time to their own desires and necessities.

The advantages of the system in connexion with ins. for bus. purposes are also set forth—the chief being that the cost would be about one-half of that under the ordinary system. The following is the T. of prems. charged:—

Table of rates by ann. payments progressively increasing during life for ins. £100 payable at death; also rates by equal ann. payments during life, by paying which at any age the insured were entitled to have their progressive life pol. converted into pol. on the ordinary system of ins.

Age next Birthday.	Progressive Prem.	Equal ann. Prem.	Age next Birthday.	Progressive Prem.	Equal ann. Prem.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
15	0 17 3	1 9 11	43	1 12 9	3 1 11
16	0 17 8	1 10 7	44	1 13 5	3 4 0
17	0 18 2	1 11 3	45	1 14 3	3 6 3
18	0 18 6	1 12 0	46	1 15 0	3 8 7
19	0 18 11	1 12 9	47	1 15 10	3 11 1
20	0 19 4	1 13 6	48	1 16 8	3 13 9
21	0 19 10	1 14 3	49	1 17 6	3 16 7
22	1 0 3	1 15 1	50	1 18 4	3 19 8
23	1 0 8	1 15 11	51	1 19 3	4 3 0
24	1 1 3	1 16 10	52	2 0 2	4 6 7
25	1 1 8	1 17 8	53	2 1 0	4 10 6
26	1 2 2	1 18 7	54	2 2 2	4 14 9
27	1 2 9	1 19 7	55	2 7 5	4 19 1
28	1 3 3	2 0 7	56	2 11 10	5 4 1
29	1 3 9	2 1 7	57	2 15 10	5 9 2
30	1 4 4	2 2 8	58	3 0 3	5 14 5
31	1 4 10	2 3 9	59	3 5 0	6 0 1
32	1 5 5	2 5 0	60	3 10 2	6 6 1
33	1 6 1	2 6 2	61	3 15 10	6 12 4
34	1 6 7	2 7 5	62	4 2 0	6 19 1
35	1 7 3	2 8 9	63	4 8 7	7 6 2
36	1 7 11	2 10 2	64	4 15 7	7 13 8
37	1 8 6	2 11 7	65	5 3 3	8 1 8
38	1 9 2	2 13 1	66	5 11 5	8 10 1
39	1 9 11	2 14 8	67	5 19 6	8 19 1
40	1 10 6	2 16 4	68	6 10 10	9 8 9
41	1 11 3	2 18 2	69	7 0 2	9 18 9
42	1 12 0	3 0 0	70	0 0 0	10 9 6

Note.—At age 70 the progressive scale was to cease, and an equal ann. prem. of £10 9s. 6d. p.c. become payable for remainder of life.

The Deed of Co-partnership was carefully drawn, but calls for no special comment here.

In 1852 the bus. of the Co., which was small, was trans. to the *Colonial* of Edin.; and that Co. undertook to issue pol. on the progressive prem. plan. It is also stated that Prof. De Morgan had expressed his approval of that plan.

Mr. E. Erskine Scott was the Man. and Act. of the Co., but not its founder.

EAST WIND—It has come to be an axiom among us, in the U.K., "that when the wind is in the east, 'tis neither good for man nor beast." Under WIND we shall hope to present a clear outline of the causes which render the east wind so objectionable.

EASTERN EMPIRE [Roman].—Proposed A.D. 364, accomplished A.D. 395, between the sons of Theodosius. Ended with the death of Constantine XIII., 1453. [MARINE INS.] [USURY.]

EASTERN MARINE INS. CO.—This Co. was projected in 1853 by Mr. Kirkman D. Hodgson (afterwards Director and Governor of Bank of England) and others of similar influence. Its proposed cap. was £1,000,000, in 200 shares of £500 each. It was completely regis., but did not go forward for some unexplained reason.

EASTON, JAMES, pub. in Salisbury in 1799: *Human Longevity: recording the name, age, place of residence, and year of the decease of 1712 persons who attained a century and upwards, from A.D. 66 to 1799, comprising a period of 1733 years, with anecdotes of the most remarkable.* [LONGEVITY.]

EASTON, JAMES, Hydraulic Engineer.—This gentleman gave evidence before the Select Parl. Committee on Fires in the Metropolis, 1862. He considered the greatest defect then existing in Lond. to be the want of an efficient and instantaneous supply of water when a fire breaks out, or when it is first discovered (2770). To have a high pressure service in Lond. entirely and exclusively for the purpose of extinguishing fires would cost £3,000,000 (2779).

EASUM, DALTON, Sec. of *European Life* from 1865 down to the date of its order to wind up. He was trained in the *British Commercial*, which office he entered in 1848, and passed through the various departments until he became its Sec. in 1859. He passed over with the bus. to the *British Nation* in 1864; and with the bus. of the last-named Co. to the *European* in 1865.

EASUM, FRANK.—He was Sec. of *Albert Life* from 1861 down to the date of its winding up. He had previously been Sec. of *Lond. Rev. Int. So.* It has been the subject of some remark that these two brothers should have been the respective Secretaries of two cos. with such unfortunate histories. It is due to them to say that nothing has transpired in either case casting the smallest imputation on them.

EASY.—The sea phrase for a ship that moves over the sea without jerking or straining.

EASY CIRCUMSTANCES.—These are considered to produce long life: hence the longevity of annuitants. The implication is that mental anxiety is destructive of the vital energies. Those who obs. men and things see frequent instances of this. Moral: buy an annuity!

EATON, GEORGE, Sec. of *Industrial Fire* from its formation in 1870.

EAVES.—That portion of a roof which projects beyond the perpendicular walls supporting it. The purpose of projecting eaves was originally to throw the water from the roof as far away from the foundation as possible: prob. with a view to allow a sheltered way to foot passengers. In some of the continental cities the practice still prevails. The danger of the spread of fire is much enhanced by the practice, and as a consequence it is almost entirely discontinued in modern buildings. In most cities and large towns overhanging eaves upon the streets are entirely prohibited. In the *Laws of Oleron*, upon which many of our municipal regulations after the Conquest are supposed to be based [OLERON, LAWS OF], we find the following:

The king ought to guard and protect the roads for the use of those to whom they are in common to go and to come, and in a common road if a man builds a house on one side, and the eaves of his roof pass beyond the half of the road, and another person afterwards builds a house on the other side of the road, and wishes to have the other man's eaves reduced within the half of the road, it is proper for the first to contract the eaves of his roof so much that they shall not pass beyond the half of the road, so that the two spouts fall in the middle of the road; and the roads are so far common that neither party has a prerogative, that is an advantage, over the other to commit a nuisance, and the first cannot assert a right of occupation against the other, for no one can assert a right of occupation against the lord. And the rights of the king consist in this, that he ought to guard the roads for the service of the community of people, as we have already said. . . .

The question of the danger from fire does not enter anywhere into the consideration.

In the U.S., where "shingle" roofs frequently prevail, the risk of eaves is well understood.

EBB TIDE.—The receding tide.

ECCHYMOSIS (from the Greek, *extravasation of blood*).—An appearance of livid spots on the skin, occasioned by an extravasation of the blood from a vein between the flesh and the skin. It is mostly occasioned by violent contusion, and sometimes extends considerably beyond the seat of immediate injury.

ECCLES, YVON RICHARD, Sec. of Lond. branch of *Scottish Amicable* since 1868. He was trained to the bus. in the *Britannia L.*, which office he entered in 1858; and he had charge of the bus. on the retirement of Mr. Francis. The bus. of the branch is prospering under Mr. Eccles' management.

ECCLESIASTICAL BENEFICES.—There are 12,967 benefices in E. and W.; and there are 9986 glebe houses belonging to such benefices. These statistics were compiled during 1872, for a purpose we shall hereafter speak of. The law throws upon the incumbent of a benefice the duty of keeping in repair the buildings belonging to it, making him and his estate liable for dilapidations, *even although caused by accidental fire*. "There is perhaps (says Mr. Bunyon) no class to whom fire ins. is a more necessary protection than the clergy." He adds, by way of exemplification:

This responsibility [for dilapidations] attaches as regards the parsonage-house, and other buildings belonging to a benefice, to every person holding possession of it, whether rector, vicar, or under whatever name he may be entitled. It also extends to the repair of the chancel of the church, when there is no custom imposing it upon the parish, or the owner of any particular estate. In the case of a rectory where the freehold of the chancel (as well as of the body of the church and the churchyard) is vested in the rector, he is bound to repair, and a lay impropiator is so equally. Where there are both

rector and vicar, they must contribute in proportion to their benefices, . . . and this responsibility applies, not only where there has been a partial damage, but where the building has been burnt down and totally destroyed, being "*pro reparatione aut necessaria re-edificatione*." The duty of inquiring into dilapidations, and reporting to the bishop, belongs to the rural deans. They would have no power to enjoin, although they would do well to recommend the practice of ins. ecclesiastical buildings.

In 1838 was enacted the 1 & 2 Vict. c. 106—*An Act to Abridge the Holding of Benefices in Plurality, and to make better provision for the Residence of the Clergy*. This provides (s. 67) that as soon as any buildings erected under its powers are completed, the incumbent is to insure them against fire. His failing to do so is made a ground for sequestration until the prem. be paid.

In 1871 there was passed the 34 & 35 Vict. c. 43—*An Act for the Amendment of the Law relating to Ecclesiastical Dilapidations*, wherein, under the head of "insurance," are the following clauses :

54. The incumbent of every benefice shall insure, and during his incumbency shall keep insured, the house of residence and farm and other buildings for the time being standing on the lands belonging to such benefice, and the outbuildings and offices respectively belonging thereto; and also the chancel of the church when the incumbent is liable to repair the chancel, against loss or damage by fire, in some office or offices for insurance against loss or damage by fire, to be selected by such incumbent, to the satisfaction of the governors, in at least three-fifths of the value thereof.

55. Every such ins. shall be effected in the joint names of the incumbent and the governors, and the incumbent shall cause the receipt for the prem. for such ins. for each year to be exhibited at the first visitation of the bishop or the archdeacon next ensuing after the same shall become payable; and the following questions shall be added to those annually sent to incumbents, under the provisions of the Act of the Session 1 & 2 Vict. c. 106, that is to say, "In what office, and for what amount, are the buildings of your benefice ins. against fire?" and "What was the amount and date of the last ann. payment for such ins.?"

56. In case any building belonging to any benefice, and ins. in pursuance of this Act, shall be destroyed or damaged by fire, and the office in which the same shall be ins. shall elect to pay the sum ins., instead of causing the buildings to be reinstated at the expense of the office, the sum so paid shall be paid to the governors, and dealt with in the same manner as moneys standing to the credit of a dilapidation account.

The next clause provides that in the event of the damage or destruction by fire of buildings not insured, the cost of restoring the same is to be paid by the incumbent, and if not so paid, the amount to be recoverable by sequestration.

The first return under sec. 55 of the preceding Act was obtained for the year 1872. It showed the following results: that in connexion with the 12,967 benefices in E. and W. there were 9986 glebe houses belonging to such benefices; that 8187 incumbents state that the buildings belonging to their benefices have been insured against fire; 359 state that they are not ins. or about to be ins.; 108 that they have no buildings; and 202 benefices were vacant when the returns were obtained; this leaves 4111 as the number of incumbents who failed to make the answers required by the Council Office upon the subject of fire ins.

In 1872 a Bill was introduced to Parl. called the "Church of England Fire Ins. Bill," with a view to place the ins. of ecclesiastical property on a more certain footing, which we believe contemplated the formation of a Co. for the especial object of insuring such property. The measure did not pass.

ECCLESIASTICAL ENDOWMENT AND ANNUITY CO.—Founded in 1850, for the purpose of granting home insurances and annuities. In 1851 it took the title of *Consolidated Annu. Endowment So.*, under which title a full account of the project will be found.

ECCLESIASTICAL HOME AND ANNUITY SO.—A project under this title was regis. in 1851. It was, however, but another title for the last-named project.

ECCLESIASTICAL LEASES.—See **LEASES FOR LIVES**.

ECCLESINE, JOSEPH B., Editor and Proprietor of the *New York* [formerly *Wall Street*] *Underwriter and General Joint-Stock Register*, commenced in 1859, and devoted almost entirely to the various departments of underwriting. Issued in monthly numbers, folio. Mr. Ecclesine is a man of genial disposition; and has the advantage of considerable practical knowledge of the subjects on which he writes. In a para. we have quoted from his journal under **CARPETS**, we have spoken of the paper under its old name.

ECCLESTONE INS. CO.—Founded in 1851, at Ecclestone, in the County of Chester, for the purpose of ins. cattle. Its bus. was a few years afterwards trans. to the *Agriculturist*.

ECLIPSE LIFE AND FIRE ASSU., REVERSIONARY, ANNU., AND GUARANTEE CO., "22, Westbourne Place, Bishop's Road, Hyde Park."—Founded in 1853, with an authorized cap. of £100,000, in shares of £1 (with power to increase to £200,000). The prosp. said :

The importance of life assu. is now acknowledged by the prudent and thoughtful of all classes of society. An earnest spirit of inquiry has been created, and the public are beginning to admit the security of the great and unerring principles of average on which life assu. is founded, and to avail themselves of its benefits. In these principles we may discover a wise and providential design that the united co-operation of the human family, in all conditions of life, should be made subservient to the maintenance of all without inconvenience or injury to any, while the heads of families, and all others bound by covenants and various other obligations to meet coming demands, are better enabled to provide for any contingency that may arise, by availing themselves of the advantages which sos. of this description offer, than by any other contrivance, no matter how ingeniously devised.

The special features were : "Pol. indisputable, except in cases of absolute fraud." Prem. monthly, if desired. Half-credit system. Loans on pol. to keep up same, "not exceeding one-fourth of the amount paid," at 5 p.c. "Pol. not forfeited on account of *Suicide*." The following also :

Lives partially, but not radically, impaired, and which may even have been declined by other offices,

assu. at rates equal to the add. risk. On proof of amended health an equitable reduction will be made in the prem.

Accidental Death.—A single payment of 3s. 8d., 7s., or 14s., will secure, in case of accidental death, a sum of £12 10s., £25, or £50.

Provision against Sickness.—A small payment by the week or month will secure to the working man in sickness, or during incapacity for labour, from 5s. to 20s. per week; thus—at the age of 20 years, 6d. a week will secure £20 16s. a year, payable weekly during sickness; and 1s. 4d. a week at the age of 34 will give £52 a year during sickness, payable also weekly.

Guarantee bonds will be granted for persons holding situations of responsibility and trust.

Deposits are received, on which 4 p.c. is allowed, repayable at 2 days' notice, and 7½ p.c. is allowed on sums for fixed periods, repayable at 3 months' notice.

A liberal classification of [Fire] risks has been arranged.

The promoter of the Co. was Mr. Thomas Taplin, an auctioneer at Paddington; and he became its Managing Director. There were three different Secs., one of whom was Mr. John Brokenshir. After struggling on for several years, during which period about £40 in prems. was received, the Co. finally died out early in 1856. An attempt had been made to amalg. it with the *Beacon*. In 1857 Mr. Taplin was sued by a person who stated that he took shares on Taplin's recommendation, and a verdict was obtained against him. The Co. was honestly conceived, but, like hundreds of others, broke down from want of efficient management.

ECONOMIC FIRE INS. CO. LIM.—Projected in Dublin in 1868 by Mr. John Innes, to be worked on non-tariff principles. We believe the Co. never became fully estab.

ECONOMIC FUNERAL AND ASSU. CO.—A Co. under this title was prov. regis. in May, 1855. Its name was afterwards changed to the *Ipswich Economic Funeral and Assu. Co.* The objects of the Co. were: insuring the cost of funerals, and insuring lives. The only funeral it "performed" was its own: not having "insured" its life.

ECONOMIC LIFE ASSU. SO.—Founded in 1823, with the view of becoming a Mut. Asso.; but with a "temporary precautionary cap." of £200,000, in shares of £100, of which but £25 per share was paid up, making the paid-up cap. £50,000. This was paid off under the provisions of the deed in 1844.

An early prosp. of the So. says:

Security and economy constitute the excellence of an ins. inst. To the former a lim. cap. or precautionary fund is necessary during the infancy of a concern, and a speedy discharge of that cap. by accumulated profits is essential to both; for although experience proves that the prems. of a so. carefully managed must in all cases form an ample fund for the payment of losses—yet, if the insured are impressed with an idea that there is a chance, however minute, that the prems. might be insufficient, they will not commit the interests of their families after their decease even to that remote hazard. The subs. of a precautionary fund to meet this prejudice should be liberally recompensed while their cap. is engaged, but ought not to remain a permanent incumbrance on the so., nor subtract any profit whatever from the prems., after the so. shall have accumulated an adequate surplus cap. of its own.

The subs. of the "precautionary fund" were to receive 5 p.c. int. ann. on the sum paid up; and one-fourth of the "savings and profits" was to be added to their cap., "until the sum advanced is doubled, when they will be paid off." Then:

To afford complete security to the insured after the subs. cap. shall have been paid off, the profits derived from pol. effected for limited terms will be accumulated at compound int. from the commencement of the inst. until they amount to £200,000, to constitute a permanent surplus cap.: and thenceforth the entire savings and profits will be divided among the insured.

Three-fourths of the present savings and profits are divided among the ins. entitled to participate therein, by add. to their pol. proportioned to their respective contributions; and in order to afford them the immediate benefit of such add. int. thereon is applied ann. in reduction of their prems. . . [This method has been discontinued.]

To prevent loss to the insured from inability to continue the payment of their prems. (by the apprehension of which many are deterred from insuring in the early periods of life), the trustees of the So. contract to purchase pol. effected for the whole period of life, on which 5 ann. prems. have been paid, at their true value—the scale of which is indorsed on every pol. at the time it is granted. . . .

In case of bankruptcy by the insured, the trustees are not bound to purchase the pol.; but in the event of its being given up to the bankrupt by the assignees, the directors are at liberty to apply, in reduction of prems., the accumulations of savings and profits which would otherwise be payable on the pol. in add. to the sum insured.

The directors are not at liberty to litigate or dispute any claim, unless it shall have been previously investigated and rejected by a gen. meeting of the insured; and then a tender of arbitration must be made to the claimant.

There are no agents to the inst., the commissions which would be allowed to them are in effect applied in reducing the prems. of the assured. . . .

Some of these features have been subsequently modified in practice; but we quote them here as landmarks in the hist. of the development of the practice of Life Ins. Another prosp. of about the same date said:

An entirely new T. of prems. has been calculated expressly for the use of this inst., in which the rates of ins. for young and middle-aged lives will be found to be considerably lower than in any office in Eng.—the So. being estab. on such principles as to present the most economical mode of assu. to the public, combined with perfect safety.

The annexed is an example of the rates for ins. of £100:

Age.	Whole Life.	Seven Years.	One Year.
	£ s. d.	£ s. d.	£ s. d.
15	1 9 1	0 15 8	0 14 6
20	1 13 0	0 17 11	0 16 7
25	1 17 11	1 0 10	0 19 1
30	2 3 11	1 4 5	1 2 3
35	2 10 7	1 8 6	1 6 2
40	2 19 4	1 12 4	1 10 4
45	3 9 4	1 16 0	1 13 9
50	4 4 1	2 4 7	1 17 11
55	5 7 1	3 3 0	2 10 10
60	6 18 4	4 9 6	3 13 10

These rates were at a later period—about 1829—superseded by another T., in which the younger lives slightly increased, and the older ages slightly decreased; but low rates of prem. constituted one of the leading features of the So.—hence its name.

The Art. of Settlement of the So. bear date 31 May, 1823, and contain (*inter alia*) the following:

1. That a So. to be called the *Economic*, etc., is hereby formed, and shall continue for ever, unless dissolved as hereinafter is mentioned, and shall consist of all persons who shall for the time being be entitled to assu. granted by the So. for the whole period of any life or lives, and which shall have subsisted for 4 years and upwards, which persons are hereinafter distinguished by the title of members.

31. That three-fourths of the votes of the members present at the ann. gen. court, to be held in the year 1829, and in every succeeding fifth year, shall be necessary to declare a div. or divs. of the profits of the So.

82. That no assu. shall be granted by the So. on the same life or lives for more than the sum of £10,000. . . . [The limit was increased to this sum in 1862.]

97. That whenever a sudden increase of deaths shall happen in consequence of the plague or any contagious or epidemic disorder, or of famine, invasion, or civil war, it shall be lawful for the board of directors, with the approbation of an extraordinary gen. court to be called by them for that purpose, to defer the payment of the whole or any part of the sums to be claimed under each and every pol. issued by the So. which shall expire during the prevalence of such plague, contagious or epidemic disorder, famine, invasion, or civil war, until such time as an adequate supply for the payment thereof can be obtained out of the funds of the So.; and the sum or sums the payment of which shall be deferred shall bear such int. (if any) as the gen. court which shall approve of deferring the same shall think proper.

129. That for the purpose of making such apportionment and appropriation [of surplus], the board of directors shall, within 3 calendar months after the 31st Dec. 1828, and within 3 calendar months after the expiration of every succeeding period of 5 years, cause an account to be taken by the Act. of all the prems. paid during the preceding period of 5 years in respect of each of the assu., the person or persons entitled to which shall be entitled to a share in the bonus, and shall compute accumulations of compound int. after the rate of 4 p.c. p.a. by yearly payments upon each of such prems., from the time of the payment thereof respectively up to the end of such period of 5 years, and shall add together the amount of all prems. paid in respect of any assu. respectively and such accumulations of int. thereon, and shall apportion every such bonus among such persons as aforesaid rateably and in proportion to the sums to which the prems. paid in respect of the assu. to which they shall respectively be entitled and such accumulations of int. thereon as aforesaid shall amount; and according to the option of the assured [shall apply the bonus to a rev. add. to the pol. or reduction of prem.] . . .

146. That the directors of the So. shall not consist of more or less than 12.

147. That 7 at least of the directors of the So. shall be qualified, as hereinafter is mentioned, that is to say, each of them shall be entitled in his own right to assu. granted by the So. for a sum or sums amounting to the sum of £2000 or upwards.

163. That within 1 calendar month after the 31st Dec. 1828, the Act. shall make out an account of the prems. paid at any time between this agreement and such 31st Dec. upon any assu. of the So. then subsisting for the whole duration of any life or lives, except assu. which shall have become forfeited or void and shall not have been revived, and shall calculate the amount of the accumulation at compound int. after the rate of 4 p.c. p.a. by yearly payments upon the amount of every such prem. from the time of the payment thereof respectively up to such 31st Dec., and shall add together the prems. paid in respect of every such assu. and such accumulations of int. thereon as aforesaid, and shall make out and lay before the board of directors a list in writing of all such assu., and shall set opposite to each the sum which the prem. or prems. paid in respect of the same and such accumulations thereon as aforesaid shall amount to.

164. That within one calendar month after the expiration of every such succeeding period of 5 years, . . . [a similar list be made].

196. That if any questions, disputes, or differences shall at any time or times hereafter happen to arise between any of the parties signing this agreement, or any such agreement or declaration as hereinbefore is mentioned, and all or any of the directors or trustees of the So., concerning any matter or thing herein contained, or any matter or thing relating thereto, or to the management or concerns of the So., then, and in every or any such case, the parties in difference shall and will from time to time leave the matters in dispute between them to be decided and determined by the opinion of 3 barristers practising in Lond. to be chosen as follows (that is to say), one of the said barristers to be chosen by one of the parties in difference, and another of the said barristers by the other of the said parties in difference, and the remaining barrister by the two barristers who shall be first chosen; and when the third shall be chosen, a case containing all the facts and matters in controversy shall be fairly stated in writing and laid before each of the said barristers, and the opinion of the major part of them in writing shall be final in determining the same, and the contending parties shall respectively submit to the said opinion, and the person or persons against whom the said decision or determination shall be made or given shall pay, discharge, and satisfy all costs, charges, damages, and expenses which shall have been occasioned by such dispute or difference, and by the means of deciding and determining the same in manner hereinafter mentioned.

The Deed has undergone various alterations, consequent upon the changes which have occurred in the constitution of the So.; and as the dates of these alterations are not given in the printed copy before us, we cannot be sure that all the details we have given from it date from 1823.

The office-bearers at the commencement were: The Rt. Hon. Sir James Mackintosh, M.P., Chairman; Mr. Geo. Farren, Resident Director; Mr. John Naylor, Act.—the two last were the founders of the So. Mr. Farren did not long retain his position: for in the next year (1824) he founded the *Asylum Life*, a proprietary co., and became its Resident Director.

A new prosp., issued prob. towards the end of 1827, introduced a modification in the rates of prem. It says:

The most accurate information relative to the decrements of human life having recently been furnished by the Gov. Life Annu. Office, by several of the tontines, and by one of the oldest estab. life offices in London: the directors have availed them of all these sources of information, and have, with considerable labour and expense, constructed a set of T. for the computation of life interests, the results of which may be relied on with perfect confidence. The rates thence deduced, and now, for the first time, presented to the public, are amply sufficient for the protection of the assured; and are,

at the same time, considerably lower than those of any other office in which a bonus is given to the pol.-holders.

The T. of prems. which followed is the same as that now in use by the So. up to the age of 50 and beyond, when it showed slightly higher prems. than those now charged. This prosp. had a T. of "increasing rates."

Mr. Charles Babbage, in his *Comparative View*, 1826, says :

A very excellent plan has been adopted by the *Economic*, of placing on the back of each pol. the sum at which the So. will purchase it after the expiration of any number of years beyond 5.

In 1827 Mr. Naylor, who on the resig. of Mr. Farren had become Act. and Sec., resigned.

The first investigation for surplus took place in 1828. The ascertained surplus was £4218—but this was not distributed.

In 1831 Mr. John Knowles became Resident Director, and remained in that position until 1840, when he resigned.

In 1832 Mr. J. J. Downes became Act. of the So.

In 1833 the So. obtained a special Act of Parl.—3 Wm. IV. c. lxvi.—*An Act to enable the Economic Life Assu. So. to sue and be sued in the name of any one of the Directors or Trustees of the said So.* There is nothing in this Act requiring special notice. There was the usual provision in such cases that the So. was not to be deemed incorporated by reason of that Act.

In 1838 the So. issued a pol. for £1000. On the payment of the claim under it (about 1872), the bonus add. were found to amount to £1022—so that the amount paid under the pol. was £2022.

In 1840 Mr. Campbell J. Downer became Sec., and retained that position until 1848.

In 1844 the "precautionary cap.," which at that time had accumulated, in the manner set forth by the Deed, to £100,000, was paid off; and the So. became from thenceforth entirely mut.

In 1848 Mr. Downer resigned the position of Sec., and Mr. A. Macdonald was appointed his successor.

In 1852 the So. was sued in the Sheriff's Court—*Duplex v. Economic Life*—for the payment of a fee for medical rep. supplied by the private medical referee of a person proposing to insure; not the medical examiner of the So. The claim was disallowed. [MEDICAL REFEREES.]

In 1857 the So. appeared in Court to defend an action upon one of its pol.—the only occasion on which it has so appeared. The case is known as *Mackay v. Stephenson* (Chairman of *Economic*). The facts were these: An ins. for £5000 was effected on the life of Mr. Charles Hunt, of Manchester. The pol. was dated 11 January, 1856; on the 29th of same month it was assigned to Messrs. Mackay, Rutherford, and Co., of Liverpool, by way of security for a debt of £10,000 and upwards alleged to be due to them by the insured. On 21 July Mr. Hunt died suddenly of apoplexy: Messrs. Mackay and Co. administered his estate. The So. resisted the claim, on the ground that the pol. had been effected by fraudulent misrepresentation and concealment of material information. It was shown that Mr. Hunt had studiously concealed from the So. the fact of a serious illness which he had at Blackpool a few months prior to the date of the pol., which illness permanently affected his constitution, and ended shortly afterwards in death;—that he had referred the So. to Mr. Birks as his *only* medical attendant, who certified in favour of the life, the fact being that Mr. Birks, to whom he was personally known, had not attended him for 12 years previously, and had no knowledge of the illness in question; that three other medical men, viz. Dr. Risk, Mr. Clayton, and Mr. Winterbottom, had been called in on the occasion of the last illness, and that Mr. Clayton was, and had been for some time past, the medical attendant of Mr. Hunt and his family. It appeared also that Mr. Hunt himself was fully aware of the serious nature of the illness at Blackpool, and that among other things he had stated on the 13th September, 1855, in a letter addressed to one of his creditors, that "he had been confined to bed for the last three weeks of the brain fever"; and again in the same month, when pressed by his banker for a life pol. as a security, which he had previously promised, he replied that "it had become impossible, as he was dangerously ill at Blackpool, and his life was not now assurable in any office." It also appeared from the evidence of Mr. Birks that he would not have certified for the life had he known of the illness at Blackpool; and the three other medical men who attended Mr. Hunt were all of opinion that his life was not after that illness eligible for ins. The jury found that the illness at Blackpool was a disease tending to shorten life; that Mr. Birks was not the medical attendant of the deceased; that the illness at Blackpool was a material circumstance which ought to have been communicated to the So., but was wrongfully withheld; that the attendance of Dr. Risk and Mr. Clayton ought to have been communicated; and that the pol. had been obtained by fraud. The verdict was accordingly entered for the So. upon all the pleas, including that of fraud.

In the same year (1857) Mr. J. J. Downes, the Act., pub. in pamph. form the *Experience of Mort.* of the So. from 1st June, 1823, to 31st Dec. 1855. This we shall speak of under ECONOMIC LIFE, MORT. EXPERIENCE OF.

In 1862 Mr. J. J. Downes retired from the position of Act., and was succeeded by his son, Mr. O. G. Downes.

The leading financial features of the So. as shown at each of its quinquennial investigations for surplus:

Year ending 31 Dec.	New pol. issued in Quinquennium.	Insuring.	New Prem.	Total Income.	Total pol. in force.	Total ins. in force with bonus add.	Life Ins. Fund.	Surplus distribut'd.	Total claims paid in Quinquennium.
		£		£		£	£	£	£
1828	1237	1,336,006	37,465	130,208	...	...	64,719	nil.	32,712
1833	1484	1,372,520	36,745	246,250	1903	1,851,959	181,790	24,000	85,459
1838	1578	1,270,757	39,904	404,052	2739	2,527,066	342,044	56,000	143,011
1843	1693	1,313,229	39,088	556,439	3628	3,243,795	603,632	91,924	188,239
1848	2384	1,778,945	56,730	741,486	5097	4,384,804	908,060	168,794	301,612
1853	2606	1,883,732	63,872	957,554	6572	5,568,320	1,357,736	255,850	364,640
1858	2578	1,875,434	65,493	1,209,798	7818	6,608,405	1,840,212	304,713	534,808
1863	2641	2,050,788	71,343	1,392,566	9022	7,795,574	2,315,130	329,890	723,723
1868	2266	2,062,573	66,785	1,573,920	9576	8,670,624	2,996,595	308,674	1,043,212
1873	2015	1,505,670	47,690	1,710,987	9812	8,746,539	2,665,544	353,083	1,177,436

The total claims paid (with bonus add.) amounted at end of 1873 to £4,594,852.

ECONOMIC LIFE, MORT. EXPERIENCE OF.—In 1857 Mr. J. J. Downes, the then Act. of the So., pub. *Experience of Mort. from 1 June, 1823, to 31 Dec. 1855.* The author says:

The experience embraces a period of nearly 33 years, and comprises the results of obs. made during that period on 11,945 pol., assu. 9335 lives, which gives a proportion of 4 pol. to every 3 persons. The results have been obtained in regard to persons, pol., and to pounds at risk.

The duration of each risk has been determined to a single day, and the value to the fraction of a £. It has been found that, on an average, each assu. was effected 134 days before the next birthday of the person assured; that the average age at entry is 35·827, or 36 nearly.

At the close of the period of obs. the following were the per-centages of the numbers of lives assu. and pol. issued:

Of persons 63·32 p.c. and of pol. 59·79 p.c. were existing
 „ 6·09 p.c. „ 6·92 p.c. had been surrendered on purchase.
 „ 16·87 p.c. „ 12·17 p.c. had lapsed, term expired, etc.
 „ 13·72 p.c. „ 13·12 p.c. were dead.

The greatest number of lives ins. and pol. issued had been at age 30.

The average duration of existing insurances was 10·16 years; of surrendered pol. 9·53; of lapsed pol. 3·42; and of pol. becoming claims 10·30: the average duration of all classes 9·2 years.

The total results of the So.'s experience as compared with the *Equitable* Experience is 90 p.c.; *Carlisle* T. 94 p.c.; *Experience* [No. 1] T. 95 p.c.; *Northampton* T. 58 p.c.

On the general experience the mort. at all ages up to 52 had been less than expected by the Mort. T. of the So.; from 52 to 71 greater, and at the higher ages equal. The highest rate of mort. had been experienced on term pol. and the lowest on the parti. pol.

The results obtained from the experience on lives and on pol. “differ so little from each other that it would appear immaterial whether in large experiences pol. or lives are made the basis of obs.; though that on lives must be regarded theoretically most exact.”

The average entering age of lives ins. by single pol. was 35·827 years.

„ of multiple pol. 38·760 „
 „ of pol. 36·605 „

The average amount insured on each life was £1042.

„ „ pol. £ 865.
 „ claim on each life £1018.
 „ „ pol. £ 833·5.

The “multiple pol.” gave the following results:

Average duration of existing insurances, 9·59 years.

„ purchased „ 8·15 „
 „ lapsed „ 3·55 „
 „ dead „ 9·20 „

Total of multiple pol. 7·62 „

The mort. experience on multiple pol. was 2·2 p.c. less than that on lives; which in this case Mr. Downes considered to be “the measure of the benefit resulting from 2nd, 3rd, etc., examinations, implying a benefit of selection.” [SELECTION.]

The “sectional experience” of mort. according to age of entry came out as follows:

Entering age under 30, expected 234·83 accrued 197· being 84 p.c.

between 30 and 45 „ 606·73 „ 605· „ 99 „
 „ 45 and 60 „ 338·92 „ 397· „ 117 „
 60 and upwards „ 83·13 „ 83· „ 100 „

The sectional experience of mort. as regards “description of assu.” worked out thus:

Parti. pol., whole life, expected 1140·3, accrued 1144, being 100 p.c.

Ascending scale ... 94·2 „ 100 „ 106 „

Term ins... 15·7 „ 28 „ 178 „

Contingent ... 15·8 „ 10 „ 63 „

The general mort. experience embraced deaths from *all* causes, in all classes of ins., including those for which extra prems. were charged—viz. for gout and hernia, marine and climate risks, foreign residence, casualties from naval and military warfare, etc.

During the period embraced in the experience, claims had fallen on 48 pol. on the lives of persons who had died in foreign countries, at sea, or in warfare; 22 pol. were extinguished by cholera; 29 by suicide and violent deaths.

Including the mort. from these causes, the experience on pounds at risk was 97 p. c. of the expected claims.

The annexed T. shows the deaths occurring in each decade of age by *Economic* experience, compared with the number which might have been expected to accrue by the *Experience* (No. 1) and *Northampton* tables.

For the purpose of reproducing some of the interesting results obtained in the investigation, we combine several of Mr. Downes' T. into the following T.

No. 1; while the expec. is shown in T. No. 2 [which we print on page 454].

No. 1.—*T. showing number of persons who entered upon, and number who died in each year of age; also number of pol. held by such persons in each year of age and numbers which became claims; also sums insured on the lives of persons who entered upon each year of age, and the amounts of claims accrued in each year of age.*

Age entered upon.	Number of persons.	Deaths accrued.	Number of policies.	Deaths accrued.	Sums insured.	Claims accrued.	Age entered upon.
10	42'4	.....	46'3	.....	£ 2,190	.....	10
11	56'0	.....	62'4	.....	29,673	.....	11
12	70'0	1	81'6	1	50,326	2000	12
13	80'7	.....	93'3	.....	53,635	.....	13
14	99'5	1	114'8	1	54,861	150	14
15	115'9	1	133'5	1	70,675	1000	15
16	132'0	.....	153'9	.....	89,000	.....	16
17	162'7	.....	184'9	.....	125,545	.....	17
18	186'1	1	206'3	1	168,011	300	18
19	208'0	1	229'5	1	203,968	1000	19
20	277'0	5	297'8	6	269,227	4200	20
21	356'6	1	381'0	1	316,408	650	21
22	481'5	6	513'5	9	416,035	8800	22
23	632'3	9	682'5	9	530,940	4950	23
24	793'5	4	866'5	4	697,062	1800	24
25	982'1	7	1079'3	7	834,943	5900	25
26	1198'0	7	1331'5	8	1,006,632	3890	26
27	1395'6	6	1555'5	8	1,181,234	6900	27
28	1580'7	16	1774'7	18	1,341,854	14,550	28
29	1775'8	9	2002'2	11	1,539,297	7955	29
30	1990'3	15	2248'8	15	1,766,535	10,750	30
31	2164'4	12	2476'4	14	1,939,421	9650	31
32	2295'5	16	2660'5	17	2,133,279	14,450	32
33	2413'2	10	2819'2	12	2,290,460	10,400	33
34	2586'8	16	3020'0	17	2,491,847	6375	34
35	2694'5	26	3162'5	27	2,629,638	22,375	35
36	2770'6	28	3289'7	33	2,744,086	26,300	36
37	2829'7	20	3381'8	23	2,862,751	14,725	37
38	2880'7	30	3459'6	36	2,969,964	21,440	38
39	2886'2	24	3488'9	31	3,008,646	22,535	39
40	2881'6	25	3506'2	28	3,035,133	26,510	40
41	2828'5	29	3461'8	32	3,001,928	34,975	41
42	2796'4	34	3437'0	48	2,961,479	37,126	42
43	2747'4	31	3384'4	41	2,939,204	30,455	43
44	2714'5	37	3342'5	46	2,936,510	33,678	44
45	2649'0	26	3277'6	29	2,905,530	25,600	45
46	2576'5	33	3200'7	40	2,880,744	20,800	46

	<i>Economic</i> Experience.	<i>Experience</i> Table (No. 1).	<i>North-</i> <i>ampton</i> T.
Under 20	10	10'12	16'17
From 20 to 30	80	89'71	182'02
" 30 " 40	207	250'91	502'95
" 40 " 50	313	327'42	627'16
" 50 " 60	342	335'26	515'68
" 60 " 70	242	225'52	258'82
" 70 " 80	79	90'44	88'82
" 80 " 90	9	10'92	11'11
	1282	1343'30	2202'73

Age entered upon.	Number of persons.	Deaths accrued.	Number of policies.	Deaths accrued.	Sums insured.	Claims accrued.	Age entered upon.
47	2505'2	33	3122'3	37	2,831,248	33,480	47
48	2399'3	30	3018'8	42	2,768,588	25,295	48
49	2287'2	22	2901'5	26	2,659,260	20,550	49
50	2217'6	38	2798'2	48	2,587,714	47,075	50
51	2127'9	32	2675'6	42	2,441,148	26,800	51
52	2015'7	41	2554'2	52	2,326,086	37,880	52
53	1872'7	40	2371'9	51	2,176,073	41,615	53
54	1728'6	28	2166'5	34	2,002,437	27,530	54
55	1600'7	36	2006'3	59	1,850,398	48,200	55
56	1472'8	37	1833'6	46	1,702,133	37,720	56
57	1325'2	44	1652'3	50	1,546,373	63,902	57
58	1174'7	32	1478'8	41	1,361,841	36,700	58
59	1065'9	29	1338'6	40	1,252,741	40,680	59
60	980'1	23	1217'8	25	1,166,470	22,000	60
61	905'9	36	1120'5	40	1,082,154	44,100	61
62	805'4	32	991'6	39	953,658	32,250	62
63	706'6	38	863'6	45	820,299	42,080	63
64	613'0	20	751'2	27	712,793	27,700	64
65	536'9	27	645'3	31	604,437	33,612	65
66	467'5	24	552'7	33	518,052	24,650	66
67	411'5	23	486'1	31	446,266	31,250	67
68	340'3	18	400'5	19	362,974	21,240	68
69	290'9	16	343'8	21	308,987	9130	69
70	238'4	8	276'1	9	240,788	11,760	70
71	208'2	11	240'7	13	202,184	16,350	71
72	176'9	10	204'3	15	168,815	8225	72
73	152'0	9	168'9	9	146,414	10,650	73
74	126'0	9	145'6	10	118,644	9500	74
75	109'3	10	120'6	10	96,830	14,560	75
76	83'9	9	92'7	11	69,397	6740	76
77	59'8	6	67'3	6	54,784	2400	77
78	44'5	4	48'4	4	40,198	2000	78
79	33'3	5	35'9	7	30,568	5715	79
80	24'1	6	25'1	8	20,216	6000	80
81	17'4	2	17'4	2	10,024	2200	81
82	12'6	2	12'6	2	6924	300	82
83	9'7	1	9'5	1	5901	200	83
84	6'7	2	6'7	2	4017	400	84
85	3'1	.....	3'1	.....	848	.....	85
86	3'0	.....	3'0	.....	800	.....	86
87	3'2	1	3'2	1	888	400	87
88	1'0	.....	1'0	.....	200	.....	88
89	1'5	.....	1'0	.....	200	.....	89
90	1'1	1	1'1	1	218	200	90

[For Table No. 2, see next page.]

In 1862 Mr. Downes, sen., prepared, apparently for private circulation, a pamph. : *An Account of the processes employed in getting out the Mort. Experience of the Economic Life Assn. So.* The author says :

When it was resolved to make the rate of mort. experienced by the *Economic* . . . a subject of inquiry, a question naturally arose as to whether there could not be devised some process of getting out the facts in a serviceable form, which should be better than those previously in use—some process, in fact, which should not only be more easy in practice, but which should insure greater accuracy in the results. After much reflection, such a process was originated, and put into practical operation with success. The outline of this process is sketched in these pages in the hope that it may prove acceptable to those who have to conduct similar statistical inquiries.

The process consisted of collecting the necessary particulars on separate cards of a particular size and shape, and is now known as the CARD SYSTEM, under which title we have briefly spoken of it. We are next told :

The suggestion for employing cards originated with Mr. O. G. Downes, and was adopted after due consideration. As is usual in the practice of the *Economic*, the whole staff were invited to consider the matter, to point out objections, and to offer suggestions. After the various objections and suggestions had been discussed, such modifications were made in the form and arrangements of the cards as appeared necessary to adapt them to the objects of the investigation. All other processes adopted underwent a similar ordeal.

The first step taken, therefore, was to trans. the data furnished by each different pol. to a separate card, and thus render the facts themselves transferable mechanically. By this means the particulars of each pol. were taken out *once for all*, thus avoiding errors arising from transcription, and the facts collected in a form susceptible of different arrangements, suitable to the different objects of inquiry. Moreover, *facts* only had to be dealt with, assumption being unnecessary, as by simple process the

No. 2.—*T. showing expectation of life, deduced from the Experience of the Economic So. on lives and policies, compared with that of the Experience Table (No. 1).*

Economic Experience.			Experience Table (No. 1).	Economic Experience.			Experience Table (No. 1).
Age.	Lives.	Policies.		Age.	Lives.	Policies.	
10	48'588	48'334	.....	40	27'198	27'094	27'28
11	47'837	47'611	.....	41	26'437	26'312	26'56
12	47'092	46'866	.....	42	25'712	25'559	25'84
13	46'356	46'130	.....	43	25'029	24'926	25'12
14	45'628	45'385	.....	44	24'315	24'228	24'40
15	44'908	44'683	.....	45	23'652	23'567	23'69
16	44'197	43'969	.....	46	22'888	22'779	22'97
17	43'490	43'263	.....	47	22'186	22'068	22'27
18	42'790	42'563	.....	48	21'483	21'334	21'56
19	42'094	41'868	.....	49	20'756	20'635	20'87
20	41'404	41'179	41'49	50	19'958	19'821	20'18
21	41'165	41'027	40'79	51	19'307	19'168	19'50
22	40'282	40'136	40'09	52	18'603	18'473	18'82
23	39'790	39'851	39'39	53	17'991	17'858	18'16
24	39'365	39'384	38'68	54	17'385	17'250	17'50
25	38'567	38'569	37'98	55	16'671	16'525	16'86
26	37'877	37'822	37'27	56	16'054	16'027	16'22
27	37'100	37'051	36'56	57	15'469	15'440	15'59
28	36'261	36'242	35'86	58	15'001	14'923	14'97
29	35'634	35'614	35'15	59	14'421	14'349	14'37
30	34'817	34'811	34'43	60	13'826	13'792	13'77
31	34'082	34'044	33'72	61	13'159	13'081	13'18
32	33'272	33'238	33'01	62	12'703	12'566	12'61
33	32'505	32'452	32'30	63	12'229	12'080	12'05
34	31'640	31'592	31'58	64	11'924	11'744	11'51
35	30'838	30'772	30'87	65	11'329	11'182	10'97
36	30'139	30'038	30'15	66	10'930	10'748	10'46
37	29'448	29'342	29'44	67	10'521	10'431	9'96
38	28'659	28'543	28'72	68	10'143	10'142	9'47
39	27'962	27'844	28'08	69	9'710	9'648	9'00

exact number of years of age passed through, as well as the fraction in days at the beginning and termination of each pol. is given.

The form of card most suited for the purpose for which they were intended had next to be considered. Several forms of cards were therefore devised and experimented upon.

As a result of these experiments (which were made on a few hundred pol.), the arrangement of the different data on the card eventually used was determined. The experiments also showed the impracticability of using months and days by name and number—the various lengths of the several months rendered the subtraction of one date from another an inconvenient operation. To meet this objection it was decided upon expressing the dates in decimals of a year.

The information requisite for filling up the cards was derived from two sources—the registers of the So., and the papers relating to each particular case:

From the regis., first, was obtained the number, date, name, sum assured, table, age next birthday, and the date and cause of the pol. passing out of obs. From the papers, as far as the information went (for in some few cases there was doubt about the exact date), the date of birth.

At first sight it may seem to have been inconvenient to seek for information from more than one source, but, practically, in taking out the facts for the purposes of the experience, it proved a positive advantage; for by having the two operations performed by different persons, the one who had to inscribe the date of birth from the papers was enabled to collate the facts already inscribed on the cards, by the one who had extracted from the registers, with the orig. records, and thus an independent check was made of the correctness of the entries on the cards from the registers. . . .

It was found . . . that in some cases there existed no record in the office papers of the precise date of birth; in some, the month and year only were given; and in some few cases there was no other information than such as could be derived from the stated age next birthday. To supply this deficiency of information, an inquiry as to the prob. date of birth had to be instituted. An analysis was therefore made, in the early part of the investigation, of the ratio of known dates of birth to the dates of pol.: from which it was deduced that on an average, assu. were effected about 4½ months before the next birthday. Acting on this deduction, dates were assigned where no information was forthcoming; and it was gratifying to find, when the investigation was completed, that this assumption did not differ very much from the 134 days which the completed experience gave as the ratio.

Happily, the cases in which an assignment of an hypothetical date of birth were very few; in fact it was only applied in those cases where no evidence could either be obtained or deduced from other sources. In many cases there had been more than 1 pol. on the same life, from a comparison of which the month of birth was indicated. In these cases birth was assumed to have happened in the middle of the month. . . .

In the end 11,945 "experience giving" cards were completed. These were then reduced to an alphabetical arrangement:

When it was found that several cards represented the same individual, it became necessary to ascer-

tain if any of them embraced a period which included the others; if so, the card of the longest duration was retained, and the others put aside for the experience resulting from multiple assu. But in some cases no one card comprehended the others, and it became necessary to make a substitute card, which should represent the exact period the risk of mort. was sustained. [The process is explained.] . . . By these means, multiple assu. were effectually eliminated, so that no one person was counted for more than any one day at one time.

After the multiple cards had been replaced by their substitutes, the whole of the cards were distributed into separate lots, for the existing, dead, purchased, lapsed, etc. Each of these lots were then sorted for the age at entry.

The summaries thus obtained for each year of age at entry were then again collected into one summary of all the ages in each class; and finally, the add. together of all the classes—the existing, dead, purchased, etc.—gave the required arrangement of facts to be dealt with in the ordinary way.

The author, in a general review of the method, says:

It will be seen that the process which has now been explained possesses in a high degree those properties of simplicity and accuracy, for the attainment of which it was originated. But its practical value is of a more extended character; for by its use the facts which constitute the subject-matter of the inquiry are throughout at such convenient disposal as to admit, without inconvenience, of the institution of any collateral inquiry. Should the results obtained show any weakness in particular parts, or should any excessive mort. be exhibited at particular ages, the means of a special investigation of the point are at hand. It may indeed be said that the practical application of the method more than justified its adoption for the special purpose for which it was required; and it has since proved, for other purposes for which it has been employed, to possess such value in getting out facts, as will doubtless lead to its adoption, until it is displaced by some better and simpler plan.

In taking out the *Economic* experience, the facilities afforded by the process were fully shown: thus by sorting the cards into different heaps for the “existing,” “dead,” “purchased,” “lapsed,” and “terms expired,” the experience of each of these classes was obtained separately; and by combining these separate results the general experience was obtained. Again, by arranging the cards according to the description of assu., the relative mort. of the different kinds of assu. was obtained, and thus there was elicited an important fact, viz. which class of assu. had proved the least profitable to the So. Cards for assu. on the lives of females admitted of the deduction of the mort. on female lives, and the average duration of different classes, as given in the “Observations,” was obtained.

In fact, the card system affords the means of making any deductions required, as it is only necessary to throw the cards into hotch-potch, and then re-arrange them in the order needed to accomplish the required object—a process which would afford pleasant fireside amusement to any domesticated act. and his family.

The Mort. “Obs.” have been already dealt with in the earlier part of this art.

ECONOMIC MUTUAL ASSU. SO.—An asso. under this title was prov. regis. in March, 1855; but its similarity to an office already existing may be assumed to have led to its subsequent abandonment.

ECONOMIC MUTUAL MARINE ASSU. ASSO.—This scheme was projected in 1849 by Mr. William Lance, underwriter, author of a very able little book mentioned under his name. The Co. did not take practical shape.

ECONOMY MUTUAL LIFE.—Founded in Lond. by some French promoters in 1845. The project very soon passed out of existence; but not however before some pol. had been issued. What became of these we cannot learn. Its offices were 147, Strand; and its Sec. Mr. H. Penry.

ECROYD, BENJAMIN, was one of the founders of the *Friend's Provident*; he also became its Sec., and retained that position down to his death in 1857, aged 57 years.

ECTHYMA.—A pustular skin eruption, occurring generally as the result of debility and long-continued ill-health. It may appear on the head, face, body, or extremities.

ECZEMA (from the Greek, signifying to *boil* or *break out*).—A disease of the skin, known by an eruption of small vesicles, generally very close together. The heat of the summer sun sometimes produces the eruption, which has then been called *eczema solare*. Bakers, grocers, and others, whose hands come in contact with irritant matters, sometimes suffer severely from it.

EDDY.—The water of a stream or tide, which, in consequence of striking against some obstacle, is thrown backwards, and runs in a direction opposite to that of the general current. More frequently, however, the term is used to denote the whirling or circular motion caused by the meeting of two opposite currents; and in this sense it is also applied to a similar motion of the atmosphere.—*Brande*.

EDDY, J. T., was Sec. of *Emperor Fire* and of *Emperor Life* in 1855–6.

EDDYSTONE [OR EDYSTONE] LIGHTHOUSE, off the Port of Plymouth, first erected 1696; destroyed by dreadful tempest 27 November, 1703; rebuilt by authority of Parl. 1708—all ships outwards and inwards to pay 1d. p. ton towards its support. Burnt 1755; re-erected by Smeaton in 1759. The woodwork of this destroyed by fire 1770—replaced with stone. [LIGHTHOUSES.]

EDEN, SIR FREDERICK MORTON, BART.—This name occurs under various titles in our pages. He was one of the founders and afterwards Chairman of the *Globe F. and L.* He was also author of (*inter alia*) the following works:

1797. *The State of the Poor; or an Hist. of the Labouring Classes in England from the Conquest to the present period.* In this work, which McCulloch designates as “a grand storehouse of information,” are found some valuable suggestions respecting Friendly Soss., for the founding of which he was a zealous advocate.

1800. A work on pop.: *Inhabitants of Gt. Britain and Ireland*.

1801. A separate vol. on *Friendly Soss.*

In 1806 he privately printed a considerable pamph.: *On the Policy and Expediency of Granting Ins. Charters*; an able work, from which we have quoted in these pages. He

discussed therein the question of "personal and unlimited responsibility as applied to ins. cos.," in which he made out a strong case in favour of capital as against credit in ins. matters. "The arguments to show the expediency of granting charters to ins. cos. are quite conclusive, and their validity is now universally admitted."—*McCulloch*.

1808. *Maritime Rights of Gt. Britain*.

In 1808 he proposed the estab. in Lond. of a fire brigade, on the model of the Corps de Sapeurs Pompiers of Paris. The proposal was not then favourably responded to, but a quarter of a century afterwards it was carried out by the formation of the LOND. FIRE ENGINE ESTAB.

He was a man of great bus. knowledge and penetration, and of untiring industry. He died in 1809, at the offices of the *Globe* Co.

EDGELL, E. WYATT, has read various papers before the Statistical So., of which we name only those that fall within the scope of our subject :

1848.—*Remarks on the plan adopted for taking the Census in 1841, with suggestions for its improvement* (Statist. Journ. vol. xii. p. 71). [CENSUS.]

1849.—*Proposal for preserving and making a General Index of the Parish Regis. anterior to 1837* (xiii. p. 218). [REGISTERS, PARISH.]

EDGELL, FREDERICK, was Sec. of *London, Edinburgh, and Dublin* Ins. Co. in 1843.

EDICT (from the Latin, signifying *I speak out*).—A proclamation, command, or prohibition; a law promulgated. In French law the term *edict* has a wide signification, being applied equally to the most momentous and the most trifling proclamations of the government.

EDICT OF NANTES, by which Henry IV. of France granted toleration to his Protestant subjects 13 April, 1598; confirmed by Louis XIII. and Louis XIV. respectively in 1610 and 1652; revoked by Louis XIV. 22 Oct. 1685. This act cost France 50,000 Protestant families, and gave to England and Germany thousands of industrious artisans. [GAMBLING INS.] [GILDS.]

EDICTUM THEODORICI.—This is the first collection of law that was made after the downfall of the Roman power in Italy. It was promulgated by Theodoric, King of the Ostrogoths, at Rome, in A.D. 500. This Code is referred to in various parts of the present work.

EDINBURGH.—The capital of Scotland, bearing also the classical name of "The Modern Athens," demands our consideration under two important aspects: first as the birthplace and location of several of the grandest ins. asso. which Gt. Brit. can lay claim to; second, while being one of the great seats of learning, its authorities have for a long period manifested considerable disregard of the teachings of science in the matter of preserving the health and longevity of its people.

The city has been the scene of some very considerable fires. In 1385 it was burned by Richard II.; in 1401 by Henry IV. Burned by the English in 1542. In 1544 a Brit. force, landing from a fleet of 200 ships, burned both Edin. and Leith. In 1547 Leith is again burned, but Edin. is spared. In 1771 there was a great fire in the Lawn-market. In June and Nov. 1824 there were very serious and destructive fires. In 1857 a number of old buildings against the Lawn-market were burned. In 1865 Theatre Royal burned, and the Dean of Guild and 7 other persons were killed by the fall of a wall. In 1621 an Act of the Estates and Town Council was passed for covering with lead, slates, or tiles instead of thatch, which had hitherto been the covering usually employed.

The city has had various visitations of the plague, as in 1513 (year of Flodden Field); again in 1585-6 very severely; and finally in 1645.

We have no precise data as to when Bills of Mort. were first kept in this city. Dr. Price constructed a "T. of obs." from them for the 20 years 1739-58; and he says that after this last date the bills were kept very irregularly.

In 1743 Mr. Maitland, prob. in view of his *Hist. of Edinburgh* to be hereafter mentioned, caused an accurate account to be taken of the number of *Families* and *Inhabitants* of the parish of St. Cuthbert in this city. The number of families was 2370, the number of inhabitants at all ages 9731. The proportion therefore of inhabitants to families was $4\frac{1}{10}$ to 1.

In 1748 the whole number of *apartments* or *families* in this city and liberties was 9064. The average number of deaths for the 8 years from 1741 to 1748 was 1783, and consequently 1 in $20\frac{4}{5}$ died annually. Assuming the number constituting a family to be the same for the whole city as that in St. Cuthbert's parish, the total pop. would be at this date 37,162. Mr. Maitland, however, puts the pop. at this date at 50,120. Dr. Price considers that this was "in consequence of a disposition to exaggerate in these matters." [FAMILIES.] [HOUSES.]

Maitland, in his *Hist. of Edinburgh*, 1753, says :

The buildings, elsewhere called houses, are denominated *lands*; and the apartments, in other places named *stories*, here called *houses*, are so many freeholds inhabited by different families; whereby the houses are so excessively crowded with people, that the inhabitants of this city may be justly presumed to be more numerous than those of some towns of *triple* its dimensions.

The author expresses much surprise that the number of males in the city was less than the number of females in the proportion of 3 to 4. We now know this to be in accordance with the law of the pop. of Gt. Brit.

Dr. Price, in the 2nd ed. of his *Reversionary Payments*, 1772, offered the following obs. on this city :

As this is a town of moderate bulk, and seems to have a particular advantage of situation, I expected to find the prob. of life in it nearly the same with those at *Breslau*, *Northampton*, and *Norwich* ; but I have been much surprised to observe that this is not the case. During the period I have mentioned (1739-58) only 1 in 42 of all who died at *Edinburgh* reached 80 years of age ; which is a smaller proportion than attain to the same age in *London*. In general it appears that the prob. of life in this town are much the same, through all the stages of life, with those in *London* ; the chief difference being that after 30 they are rather lower at *Edin.* It is not difficult to account for this. It affords, I think, a striking proof of the pernicious effects arising from uncleanness, and crowding together in one spot too many inhabitants.

He adds :

All I have been saying must be understood of the state of *Edin.* before the year 1758. The bills for the last 12 years have been so irregular, and so different from the same bills for the preceding years, and from all other bills, that I cannot give them any credit. Either some particular incorrectness has crept into the method of keeping them, or there has been some change in the state of the town which renders them of no use. Prob. the former is the truth.

Dr. Watkinson, in his examination of a charge brought against inoculation, pub. in *London*, in 1777, says : "The air of *Edin.* is as unhealthy as that of *London*., yet the inhabitants contained in the former of these cities do not amount to a 16th part of the number contained in the latter."

From other sources we learn that in 1755—shortly before the commencement of the new town—the pop. of *Edin.* was 57,195 ; in 1775 it was computed at 70,430 ; and in 1791 it had risen to about 80,000. By the Parl. Census of 1801 the pop. amounted to 82,560 ; in 1811 it was 102,987 ; in 1821, 138,235 ; in 1831, 136,054 ; in 1841, 138,182 ; in 1851, 158,015 ; in 1861, 170,444 ; 1871, 200,965. In some of these *Leith* has prob. been included. The pop. of *Leith* in 1871 was 46,465. The total births in *Edin.* in 1872 were 6652, being at the rate of 3·25 p.c. ; the total deaths 5477, being at the rate of 2·67 p.c. ; the total marriages 1766, being at the rate of 0·86 p.c.

Regarding the water supply, the city orig. was supplied chiefly from wells within the borough. About 1680 a supply was brought in a leaden pipe from the Tod's Well—a distance of about 4 miles. An add. was subsequently procured from Bonaly ; but the supply proving quite inadequate to the wants of the inhabitants, the Town Council, being unable to raise money for the purpose themselves, surrendered their rights for £30,000 to a water co. which became incorp. in 1819. The supply provided by this co. still proved insufficient ; and in 1853 more extended works were carried out. In 1855 the supply was estimated at 25 gallons to each person in *Edin.* and the adjacent towns and villages. This supply was regarded as inadequate.

In 1847 Dr. Stark pub. his *Inquiry into the Sanitary State of Edinburgh*, in which he gives the following account of the progressive state of the mort. of this city :

From 1780 to 1789, 1 person died ann. out of 34 living ; from 1790 to 1799, 1 died ann. out of 36 living ; so that in proportion as *Edin.* was better supplied with water, and spread into the newer parts of the town, the health of the city improved. From 1800 to 1809 there died ann. 1 out of every 39 inhabitants ; and from 1810 to 1819 only 1 out of every 40 living. Thus it is seen that in proportion as the town improvements went on, the mort. of the inhabitants diminished. The next decennial period, from 1820 to 1829, shows however a retrograde movement—the mort. increasing to 1 out of 38 inhabitants ann. ; and being still greater during the consecutive decennial period 1830 to 1839, during which period 1 died ann. out of every 34 living. During the current decennial period, there has been 1 death out of every 36 living—showing that since 1820 causes of mort. have been at work which were not then in existence, and are if anything on the increase.

It will be observed presently [ENGLAND] that the date of this deterioration corresponds very nearly with that assigned by the Reg.-Gen. and other authorities as occurring in the health of England. Dr. Stark attributes the cause in his city principally to a worse moral and physical condition of the lower classes, arising from the immigration of the Irish into *Edinburgh*. These began to arrive in considerable numbers in 1818 ; and at the time he wrote *constituted nine-tenths of its paupers* !

In 1855 the Act for the regis. of births, deaths, and marriages in Scotland came into force, and there followed from it the interesting ann. detailed reps. of Dr. Stark, from which it became possible to ascertain with something like precision the mort. of the cities and towns, and hence of comparing it with that of the country districts ; or with the towns in England and elsewhere.

The schedule at first prepared for the purposes of this Act was very comprehensive—far more so than anything which had preceded it. Its very comprehensiveness killed it. Numerous complaints were made of the irksome labour of filling up the details required, and after one year's experience it was abandoned for a much less comprehensive one. It is to be hoped the time will come when the recording of facts of interest regarding the social condition of the people will not be abandoned on the ground of completeness. The materials gathered on this occasion have happily not been lost. Dr. J. Matthews Duncan, in his interesting work *Fecundity, Fertility, Sterility, and Allied Topics*, etc., 1866, has deduced many of the important facts contained therein from these schedules of 1855 ; but this tends to increase the regret that such facts were obtained for one solitary year only.

We give the following T., taken from the first rep., adding the explanation there given : "The deficiencies of the census of 1851 prevent the separation of *Leith* from *Edinburgh*, so that in many of the T. which follow these two towns are reckoned as one."

Edinburgh and Leith.—Pop. and deaths in 1855 at different ages; and proportion of deaths to pop. at each age.

Ages.	Population, 1855.		Deaths, 1855.		P.c. of deaths to pop.	
	Males.	Females.	Males.	Females.	Males.	Females.
Under 5 years...	11,843	11,829	946	881	7'98	7'44
5-10 „ ...	10,373	10,288	121	108	1'16	1'05
10-15 „ ...	10,122	9896	44	41	0'43	0'41
15-20 „ ...	9902	11,709	64	59	0'64	0'50
20-30 „ ...	18,574	24,485	180	197	0'97	0'80
30-40 „ ...	12,439	16,766	215	207	1'72	1'23
40-50 „ ...	9009	12,138	196	206	2'17	1'69
50-60 „ ...	5975	8531	190	207	3'18	2'42
60-70 „ ...	3298	5187	186	260	5'64	5'01
70-80 „ ...	1310	2170	159	245	12'13	11'29
80-90 „ ...	232	537	61	111	26'29	20'66
90-100 „ ...	13	46	2	22	15'38	47'82
100 and above	1	2	...	...	...	100'00
Not stated ...	...	...	4	3	...	...
All ages ...	93,091	113,584	2638	2549	2'54	2'24
Both sexes ...	206,675		4917		2'38	

In reviewing the causes of death, Dr. Stark says :

Prob. on an average of years, of *all* the towns, Edin. and Leith present the smallest mort. from the tubercular class of diseases. The position of Edin. on sloping hills, and its consequent free natural drainage, its neighbourhood to the sea, and the thorough ventilation of all its deep streets and closes by the breezes to which it is more than agreeably subject, sufficiently explain its position at the head of the principal Scottish towns as the most free from tubercular diseases; while much the same causes account for Perth and Aberdeen following so closely in the wake.

In 1865 Dr. Henry D. Littlejohn, M.D., medical officer of health for the city, pub.: *Rep. on the Sanitary Condition of the City of Edin., with relative Appendixes*, etc. This is a most exhaustive document, of which it is impossible even to give an adequate idea here. We must content ourselves with one or two passages indicating its scope and treatment :

Edin. has never been regarded as an unhealthy city. Its death-rate, although subject to considerable ann. variations, will bear favourable comparison with that of other large towns, which do not labour under its special disadvantages. It is, however, peculiarly exposed to the ravages of epidemic disease of all kinds, on account of its dense and badly-housed pop.; and whether the epidemic be cholera or fever, the poorer inhabitants living in the crowded districts of the old town suffer in a marked degree. During the last 5 years the health of the community has been good, and among the working classes food and work have been unusually plentiful. The following T. shows the average death-rate for that period has only been 24 p. 1000. It will be observed that the pop. has been calculated for each year, and that certain deductions have been made from the number of deaths—viz. those of persons who died in the Royal Infirmary, and who belonged to the neighbouring sea-port (which since 1837 has not formed part of the city), or to various counties of Scotland. By this means a correct estimate can be formed of the death-rate of the city, which would otherwise be burdened with a large amount of mort., for which it is solely indebted to the celebrity of its hospital and medical school.

Here is the T. referred to :

Year.	Pop. within the Parl. boundary.	Total deaths regis. within the Parl. boundary.	Deduct deaths belonging to		Remain- ing mort.	Births.	Death- rate p. 1000.	Birth- rate p. 1000.	Excess of birth- rate over death- rate.
			Leith.	County.					
1859	166,380	3619	23	86	3510	5446	21'09	32'73	11'64
1860	167,248	4149	22	97	4030	5380	24'09	32'16	8'07
1861	168,121	4077	23	108	3946	5694	23'47	33'87	10'4
1862	168,989	4661	19	137	4505	5722	26'65	33'86	7'21
1863	169,857	4496	31	149	4316	6123	25'4	36'05	10'65

Dr. Littlejohn further says :

In inquiring into the sanitary requirements of the city, and in attempting to point out how the death-rate may be lowered, it may be useful to generalize our remarks. A glance at the map of Edin. shows that the city naturally divides itself into 3 great divisions, viz. an old, and a new town separated by the Railway Valley, or that of Princess Street Gardens; while to the south the meadows constitute a distinct line of demarcation between the older portions of the city and the suburbs of Newington, Grange, and Morningside. In our inquiry into the sanitary requirements of the city, we shall consider the most earnest necessities of these 3 divisions, embracing as they do various of the sanitary districts, which naturally group themselves together. In the T. below are given the pop. of the three

divisions as at the census of 1861; their respective mort. during 1863; their acreage; and the density of the pop.

Here is the T.:

	Population, 1861.			Mort. 1863.			Death-rate p. 1000.			Area in im- perial acres.	Proportion of pop. to each acre.
	Above 5 years.	Under 5 years.	Total.	Above 5 years.	Under 5 years.	Total.	Above 5 years.	Under 5 years.	Total.		
New Town ...	55,084	5519	60,603	741	368	1109	13'27	66'67	18'3	1765'5	34'3
Old Town ...	85,187	12,901	98,088	1618	1397	3015	18'99	108'29	30'73	1078'5	90'9
Southern Sub- urbs ...	8513	917	9430	146	46	192	17'15	50'16	20'36	1104'	8'5
Total for Parl. area ...	148,748	19,337	168,121	2505	1811	4316	16'83	93'65	25'67	3948'	42'5
Landward ...	2130	193	2323	85	11	96	39'9	57'	41'32	3127'	7
Total ...	150,914	19,530	170,444	2590	1822	4412	17'16	93'29	25'88	7075'	24'21

By way of conclusion the author says:

It would be very desirable that the death-rate of the following districts should be at least reduced to 25 p. 1000: *Abbey, 37'1; Tron, 34'46; Grassmarket, 32'52; Canongate, 31'15; St. Giles, 28'8*. The effect of this would be the ann. saving of 312 lives—the lowering of the death-rate of the old town from 30'73 to 25'28 p. 1000, and that of the city generally from 25'4 to 23'82.

In 1870 Mr. W. T. Thomson pub. *Letter to the Right Hon. the Lord Provost of Edin. as to the sanitary state of the City*. The author deals in a very succinct manner with the more potent evils requiring to be remedied. He says:

I take the liberty of addressing you as to the high rate of mort. which has prevailed for some time in the city of Edin., and more particularly during the past year, as compared with other cities in the U.K. and abroad. The prefixed T. has been prepared from the Rep. of the Reg.-Gen. of Eng., and shows the ann. rate of mort. p. 1000 persons during each week in the year, commencing 21 Nov. 1868, and ending 20 Nov. 1869, in Lond., Edin., and Dublin; also in Bristol, Birmingham, Liverpool, Manchester, Salford, Sheffield, Bradford, Leeds, Hull, Newcastle, and Glasgow, and (with some weeks incomplete) in Paris, Berlin, Vienna. On comparing the results in these different cities, it will be observed that Glasgow stands at the head of the list, Berlin second, Vienna third, then Edin., and the remaining 13 cities follow.

Then we have the following statement of results:

Average rate of mort. p. 1000 of the pop. in 17 cities during the periods under mentioned, as observed from 21 Nov. 1868, to 20 Nov. 1869, and arranged according to the rate of mort., the highest being first and the rest in order.

Glasgow	33'6 p. 1000 of pop. (50 weeks)	Sheffield	26'4 p. 1000 of pop. (52 weeks)
Berlin	31'8 " " (44 weeks)	Bradford	26'0 " " "
Vienna	31'2 " " (40 weeks)	Hull	25'0 " " "
Edinburgh	30'3 " " (51 weeks)	London	24'4 " " "
Liverpool	28'9 " " (52 weeks)	Dublin	23'8 " " (50 weeks)
Manchester	28'9 " " "	Bristol	23'2 " " (52 weeks)
Leeds	27'0 " " "	Paris	23'0 " " (20 weeks)
Salford	26'7 " " "	Birmingham	20'8 " " (52 weeks)
Newcastle	26'7 " " "		

Thus 5'9 p. 1000 more persons died in Edin. than in Lond.; 6'5 more than in Dublin; 7'3 more than in Paris; and no less than 9'5 more than in Birmingham. Or if the pop. of Edin. in the middle of 1869 be assumed as 178,000, it follows that 1050 more persons died during the year under review in Edin. than died out of the same proportional number in Lond.; 1157 more proportionally than in Dublin; 1300 more than in Paris; 1691 more than in Birmingham. Again, taking a more extended period, the average number of deaths p. 1000 persons in Edin. during each year from 1858 to 1868 was as follows:

1858	24'9 p. 1000	1862	27'7 p. 1000	1866	27'4 p. 1000
1859	21'9 " "	1863	26'0 " "	1867	27'1 " "
1860	25'0 " "	1864	26'0 " "	1868	27'0 " "
1861	24'4 " "	1865	27'8 " "	1869	30'3 " "

It is thus seen that there has been a gradual though irregular increase of mort. during the 12 years under review. Mr. Thomson remarks hereon:

I do not mean to say that there has been an increase in the mort. of Edin. alone as compared with the other cities named; for I observe that in 9 other instances there has been a considerable increase also during the past 10 years; but it is as to Edin. alone that I now write, and I propose to deal with the condition of that city by itself.

Then we have the following abstract of the causes of death regis. in Edin. during the 12 months from Nov. 1868, to Nov. 1869, taken from Rep. of Reg.-Gen.:

Zymotic Class (infec. & epidemic)....	1225	Heart, etc.	334
Dropsy, cancer, and others of un- certain seat	229	Respiratory organs	938
Tubercular Class	819	Digestive organs.....	332
Brain, nerves, etc.	542	Kidneys, etc.	97
		Uterus, puerperal disease, etc.....	40

Joints, bones, rheumatism, etc.	45	Age	268
Skin, etc.	6	Sudden	3
Malformation	10	Violence, privation, etc.	152
Debility from premature birth	244		
Atrophy	41	Total	5325

After some further obs. Mr. Thomson reaches the main consideration before him, which he thus brings out into strong relief:

Why should Edin. be so unhealthy? Why should it stand second in deadly order next to Glasgow, with its teeming manufacturing pop.? Why should all other Brit. cities be more successful in warding off death than Edin.? These are questions which should at once occupy our serious attention. We have hospitals and learned skilful medical men. We have sanitary improvements in progress on a large scale to promote healthfulness of the city—particularly the older parts of it; and we are told that our river—the water of Leith—has been purified. We have charities without number, and a newly-organized system of seeking out the suffering poor by district visitation. We have poor-houses and poor-rates. The city is so placed as to possess all the accessories tending to good health. We have also pure water, and daily cleansing; with the use frequently of disinfectants. We have hill-breezes and sea-breezes, and as much sun as ever falls to the lot of any city in the kingdom. Wherefore, then, the mort. with all these advantages?

Mr. Thomson admitted that he was not prepared to state “dogmatically from what special causes our abnormal state arises”; his chief object being to draw attention to the facts. He proceeds to bring under particular notice “one or two causes affecting the public health, which appear to me to call more particularly for immediate inquiry and remedy.” These were—(1) overcrowding and want of employment; (2) the subject of intramural interment as permitted in Edin.; (3) the condition of the water of Leith, and irrigation by sewage; (4) the habits of the people; (5) general considerations. Here we can only follow him very cursorily. Under the 1st head he says:

There is no doubt that in certain parts of the city of Edin. over-crowding is a well-ascertained cause of misery, immorality, disease, and death; while even in the better parts our sanitary arrangements are very far from perfect. . . . It will be observed that wherever the density of pop. is greatest the mort. is also generally greatest: and it may be held as an axiom that wherever there is most overcrowding there is almost invariably most death. . . .

Under the 2nd head:

Within the last 30 years the graveyards have been relieved by the estab. of cemeteries, orig. at some little distance from the town; but now, unfortunately, in many instances, surrounded by its extensions. These cemeteries however have only relieved the graveyards in the city—not closed them. I dare say it will startle many; indeed I almost shrink from the revelation, but I feel it a duty to make it known in this public manner, that in one burial ground alone, in the very midst of our city, close to everything that is gay and bustling, no fewer than 750 burials still take place annually. I do not know what the numbers were before the cemeteries were estab. . . .

Under the 3rd head:

The irrigation of the meadows towards the east is, I have no doubt, also a cause of disease, arising from malarious atmosphere. . . . It is quite impossible that we can have damp meadows, loaded with sewage, surrounding particular parts of the town, without mischievous effect on the health of the inhabitants. It may not appear in the form of outbreaks of disease in the immediate neighbourhood of these rank swamps; but the emanations from them may be carried in the air—the blight resting on those overcrowded and uncleanly places which are ready for the reception of any deleterious influences which may pass over them. . . . If the sewage is to be utilized, let it be done in some other way, by elutriation or otherwise, but not by irrigation in the immediate suburbs of a city like Edin.

Under the 4th head:

It is obs. that the deaths in Edin. from diseases of the brain are larger in proportion than in many other cities of Scot. . . . It is possible that the death-rate may be increased in consequence of the severe toil to which professional and literary men are subjected in this age of constant and arduous labour, Edin. being the chief seat of those professions and inst. which call forth most mental work; but I am also inclined to think that the *habits of the people* have much to do with the increase. . . .

There is then given the following statement of *Deaths from brain disease to the total deaths in the 8 principal towns of Scotland*:

Glasgow	6'94 p. 1000	Paisley	8'48 p. 1000
Edinburgh	10'70	Greenock	7'57
Dundee	8'24	Leith	8'55
Aberdeen	10'09	Perth	9'97

In 1872 Mr. Thomson returned to the subject, more especially calling attention to the continued evils of intramural interment; and the violent, not to say unscrupulous, way in which his statements were attacked, though not disproved, indicate at least that his philanthropic endeavours are beginning to be *felt*. Mr. Thomson writes as one who feels “thrice is he armed who hath his quarrel just”—and he takes his stand upon the dictum of our English Reg.-Gen.: “A sustained death-rate above 17 p. 1000 always implies unfavourable sanitary conditions. The Lond. rate of 24 is moderately good. *Any rate above 30 implies sanitary conditions destructive to human life.*”

In this city there is an excellent fire brigade, which it is interesting to know, if not founded by, was drilled and equipped by the late Mr. Braidwood. By constant practice and attention to drill he was enabled to get a manual engine into play, with 120 feet of hose attached, in 1 minute and 10 seconds. There is also a very good supply of water for the purposes of fire extinguishment: a full supply being always kept at full pressure; so that there is very rarely any delay at fires. The city has been very free from fires of recent years.

The control of the fire extinguishment arrangements of the city was by the 11 & 12

Vict. c. 113 (local), placed under the Edin. Police Act, 1848, under which the Commissioners thereby created were empowered to provide engines, fire escapes, and engine houses (ss. 77, 79), and to send their engines, in case of emergency, beyond the limits of the Act—levying the expenses in such cases upon the owners and occupiers of the property endangered (s. 78). By the Edin. Municipal Extension Act, 1856—19 & 20 Vict. c. 32 (local)—the powers and property of the Commissioners were vested in the Magistrates and Councillors under the Act (ss. 44, 45), being in effect the Lord Provost, Magistrates, and Town Council of the city. [SCOTLAND.]

EDINBURGH AND GLASGOW INS. CO.—Under this title was founded, in 1838, the flourishing inst. now known as the *Life Assn. of Scotland*. In 1841 it relinquished its orig. title in favour of its present one, under which we shall give its hist.

EDINBURGH AND LEITH MARINE INS. CO.—Founded at Leith in 1845; but of its subsequent hist. we have no details.

EDINBURGH LIFE ASSU. CO.—Founded in Edin. in 1823, with an authorized cap. of £500,000, in 5000 shares of £100, upon which £10 per share was originally paid up. It is usually understood that this Co. was founded upon the model of the *Law Life*; and that such was the intention of the promoters seems clear.

The promoters' prosp. contained (*inter alia*) the following passages:

The result of experience having proved that life ins. is a most profitable mode of investing cap., and it being well known that it is through those connected with the law that the greater part of such bus. is derived, it is proposed to estab. a Co. in Edin. for the purposes of life ins., and that the subs. for 6 months after the date of a meeting of subs. declaring the Co. estab. shall be limited to the members of the legal bodies and accountants in Scotland.

The management of the Co. to be vested in a president, a vice-president, 12 extraordinary directors, and 15 ordinary directors; these officers to be named for the first year by a meeting of subs. to be called for that purpose, and thereafter to be chosen ann. at a gen. meeting of the proprietors; and at which meeting a state of the affairs of the Co. shall be exhibited by the directors. The active management of the bus. of the Co. to be conducted by a person of judgment and experience, to be appointed by the directors, the other officers of the estab. to be also appointed by them.

The bus. of the Co. to embrace life ins. and the purchase and sale of annu. in all their departments, the rates of the leading offices in Lond. to be the basis of the Co.'s T.

The stock and funds of the Co. to be the only fund liable to the assured, and a clause to that effect to be inserted in each pol.

The shares to be transferable; but in case of their coming to be disposed of, the Co. shall have the first offer of them. Shares to afford votes according to a scale to be afterwards settled. Every proprietor to be allowed to vote by proxy, such proxy himself being a proprietor. No person to hold more than 50 shares [afterwards altered to 100], and no one to be an ordinary director who does not hold 10 shares.

In order to obviate the main difficulty which has been found to attend the commencement of a life office, and which lies in the want of a sufficient number of risks at the outset, it shall be a stipulation that each partner shall, on being admitted, effect an ins., either on his own life or on that of another, to be approved of by the court of directors, to the amount of at least a *tenth part of his subs. stock*. This is a stipulation which, from experience, has been found to be attended with great advantage. [Since repealed.]

That all profits of the concern shall accumulate for the benefit of this Co. for at least 5 years from its estab., that thereafter such a div. shall be paid to the proprietors as may seem expedient, and the remaining profits shall be applied in such proportions and at such periods as shall appear proper; 1st, to the increase of the cap. stock for the benefit of the proprietors; and 2nd, to the increase of the sums in the pol. for the benefit of the persons assured. But it shall be a fundamental principle that no such appropriation shall be made until after a careful investigation of the value of the existing pol., nor oftener than once in 7 years.

These are what is proposed to form the leading features of a scheme which, it is confidently anticipated, will meet with support. The immense sums which all the life ins. sos. in Eng. have accumulated show, incontestably, that it is a most profitable mode of investing cap. The *Equitable*, for instance, after dividing a large portion of their profits amongst the assured, has realized a cap. of full 6 millions stg. And here it may be asked, why should the people of Scotland continue to send every year large sums out of the country which they have the means within their own power to retain? To say that the field is already occupied is a mistake. There is only one estab. [*Scottish Widows' Fund*] exclusively for the purposes of life ins. in this country. One fire office [*North British*] has lately added it to their scheme, and another has it in contemplation to do so. But even this would only make three life ins. cos. peculiar to Scotland. And the number of English agencies of itself proves that there is still ample scope for another amongst ourselves. Life ins., too, is daily becoming more extended as its beneficial consequences are now more generally known. Besides, it will be always kept in view that, *from the nature of the proprietary*, a great proportion of this bus. must necessarily accrue to the Co.

It may be added that the legal bodies in Lond. have just estab. a so. formed exclusively of those connected with the law. [*The Law Life*.]

The contract of Co-partnership was dated 29 August, 1823, on which date the operations of the Co. were to commence. General courts fixed for 2nd Tuesday in Dec. (sec. 9) [afterwards changed to 1st Tuesday in July]. Ann. general courts required 20, and extraordinary gen. courts 40, persons present [since cancelled]. The bus. of the Co. to be carried on in Edin., but provincial directors might be appointed in other towns; but these must be shareholders (sec. 23). No director of another ins. co. to be an ordinary director of this (s. 27). All pol. to be signed by 3 directors; no partner liable beyond his subs. (s. 28). Paid-up cap. and proportion of profits to form "proprietors' guarantee fund" (s. 31). Premiums, etc., and interest and dividends to form "the assurance fund"; and guarantee fund not to be liable until the assu. fund exhausted (s. 32). Division of profits to take place at end of first 12 years; and every 7th year thereafter. A proportion of profits, not less than one-sixth, or more than one-fourth, to be reserved for contingencies; and another portion of not more than *one-third* to proprietors' guarantee fund; remainder to pol.-holders (s. 34) [now, i.e. since 1849, *nine-tenths* of all profits to parti. pol.-holders]. The division of surplus required to be ratified by two extraordinary

gen. courts; but this has very properly been simplified. There was orig. an "appropriated fund" for dealing with bonus (s. 35). It was the orig. intention of deed that no part of proprietors' guar. fund should be divided until the fund amounted to £100 p. share. This was modified in 1849-50. Partners retiring to be entitled to be relieved of all liability by remaining partners (s. 49). Shares of insolvent partners to be sold (s. 50). Directors liable only for their actual intrusions (s. 54). They may apply for Charter or Act of Parl. (s. 57). Provisions for altering Deed (s. 59).

The first ann. gen. meeting of the Co. was held 14 Dec. 1824; and at this Sir Walter Scott, of "Waverley" fame, who was an extraordinary director in the Co., was present. In 1833 the Co. obtained a special Act of Parl.—3 Wm. IV. c. lxx.—*An Act to enable the Edin. Life Assu. Co. to sue and be sued in the name of their Man., Sec., or a limited number of their ordin. Directors, to hold property, and for other purposes relating thereto.* This Act was repealed by another obtained in 1845, and we need not therefore dwell upon its provisions.

Mr. George Mylne was one among the several early officials of the Co. On his retirement in 1833, Mr. G. L. Finlay, whose name during a long series of years was so intimately and honourably associated with the hist. of the Co., was appointed Man.

The 31st Aug. 1835 was the date at which the first investigation into the affairs of the Co. with a view to the appropriation of surplus fell to be made. Such an occasion is one of interest in any Co., but it was especially so in this case, as 12 years had elapsed from the commencement of operations. A committee, consisting of 8 of the directors, had been some time previously appointed in view of this event, "for the purpose of making themselves more fully acquainted with the subject, and considering the manner in which the investigation should be made." The meetings of that committee extended over more than a year, and were very numerous.

Among the persons consulted by the Committee was W. Nicholas Grut, then Act. of *Palladium*. A plan of allocating profits was proposed by him which bore a close resemblance to the "Contribution plan" of later development in the U S. The directors, however, considered this too complicated, and they preferred adopting a plan, which, with some modifications, had already been acted upon by some of the Lond. offices, viz. the *Law Life*, *Palladium*, *Atlas*, *Guardian*, etc.; and which in its result was not very dissimilar from that prepared by Mr. Grut.

We quote an official record of the labours of the Committee:

They took the utmost pains to obtain the best information and to ascertain the systems that had been adopted by all the offices, both here and in Eng. After having had before them the plans adopted by other cos., and having fully discussed the merits of each, the committee were unanimous in giving the preference to the plan afterwards to be mentioned, which was confirmed and approved of by the matured opinions and advice of Mr. James Brown, accountant, who, besides assisting in all their deliberations as a member of the committee, and devoting a great deal of his time to the consideration, both of the general principles and of the details, was prevailed upon at the earnest solicitation of the directors to prepare a rep., which contains a valuable professional opinion on the subject, accompanied with reasons highly satisfactory. The directors feel themselves called upon to express to the proprietors the high sense they entertain of their obligations to the committee and to Mr. Brown for the great pains and attention which they have bestowed on a subject of so much difficulty and importance, and for the satisfactory manner in which they have discharged the duty which was committed to them.

We shall speak of Mr. Brown's rep. more in detail hereafter. In the mean time we quote the following outline of the "plan of division" actually adopted:

The total amount of prem. received from any individual assu. is accumulated to the period of division, at the same rate of int. according to which the T. of prem. was calculated. From this amount is deducted the valuation of the pol., or the sum which is found to be equivalent to the risk as increased by the advanced age of the party, and the difference is held to represent the amount of profit on each individual pol., on the supposition of the risk being thus provided for. The sums of profit thus found to arise from each pol. are then held as the measure of the shares of the divisible profit, which belong to them respectively. In other words, the free profit is allocated to the pol. in the proportions which the calculated profit on the whole bears to the calculated profit on each, and these shares of free profit are calculated into rev. interests and added to the sums in the pol., payable on their emerging. This mode of allocation proceeds on the footing that the lives are re-insurable at the advanced period, which cannot safely be assumed. The directors have therefore resolved that the actual vesting of the rev. interests shall be postponed for 3 years, and that where a claim arises under a pol. within that period, the share of divisible profit in present money shall be paid with accumulated int. at the tabular rate.

The rev. bonus then declared equalled nearly 1 p.c. on the sum ins. for each year of the currency of the pol., or about 28 p.c. on the amount of prem. paid. It is further stated:

If the directors had wished only to gain a temporary popularity, or had they allowed too sanguine a view of possible contingencies to influence their deliberations, they might have declared a larger amount of bonus than that which they have now recommended—and if they had trans. their whole future risk to another co., they have little doubt that they would have realized a greater sum than their estimated surplus. But in all their calculations the great object which the directors have had in view has been *security*; in discharging their duty to the proprietors, as well as to the assured, they have felt that no consideration ought to interfere with such an adjustment of their affairs as should afford a certainty of their ample ability, on the one hand to fulfil all their engagements in every event that could be contemplated, and on the other to protect the contributed fund of the proprietors as far as possible from the risk of encroachment.

They have remembered that 12 years is but a short period in the endurance of an extensive enterprise like the present, which requires a long experience before the various hazards to which it is exposed can be fairly estimated; that in all the great and successful estab. of the kind, and more especially in the greatest of all, the Lond. *Equitable*, the first proceedings have been characterized by the utmost

caution in the distribution of estimated profits, and that to their prudence in this respect their ultimate success and progressive increase of benefits have uniformly been ascribed by their own officers. Finally, the directors felt convinced that, while a false step in making too high an estimate of their free fund might be attended with disastrous and irretrievable consequences to their future success, the effect of a more cautious course is always capable of being afterwards compensated to those who may come to have the strongest claims upon the Co., by remaining contributors to its fund for the longest period.

The alteration of the Deed in regard to the allocation of surplus (already referred to) was made at this period. The directors considered that there were "good grounds for their now recommending this alteration." These grounds are thus fairly stated :

At the formation of the Co. the subs. cap. was the security on which the bus. was to be commenced, and, until a sufficient fund could be accumulated, this subs. cap. was to a certain extent subject to risks which might well entitle the subscribers to one-third of the profits as a remuneration for such risks ; and besides, as it was most desirable that the amount of the Guar. Fund should be increased, the add. of one-third thus made to that fund might be considered as for the benefit of the assu. as well as of the proprietors, seeing that no part of it was to be abstracted from the funds held as a security by the Co. But now that the successful accumulation of the Assu. Fund has altogether removed all apprehension of risk on the part of the proprietors, and as the increased amount of the Guar. Fund forms as ample a security as can be wished, the reason for allowing to the Proprietors' Fund so large a proportion of the profits seems to have ceased ; and the directors are of opinion that an increased share being allotted to the assured will have a most beneficial effect in promoting the future prosperity of the Co. . . .

The modification then made was that *four-fifths* of surplus be given to the parti. pol.-holders, and one-fifth to the proprietors. This was again modified in 1849, still further in favour of the pol.-holders.

In 1835 also appeared : *Rep. by James Brown, Esq., Accountant, to the Directors of the Edinburgh Life Assu. Co., respecting the Division of the Co.'s Profits*, prepared under the circumstances already stated :

He had no difficulty in now stating that he approved of the plan by which the cumulo profits are divided among the pol.-holders in proportion to the profits appearing to arise from the premis. contributed by them individually, as being the best calculated to give effect to the interests of the various parties which fall to be kept in view.

He then sets out his reasons in some detail, but there is no need to follow these.

As from 25 April, 1836, the Co. adopted a new Mort. T., which had been specially prepared for it. This T. was a compound of the *Northampton*, the *Carlisle*, and the *Equitable Sos. Experience T.* by Davies and by W. Morgan, combined with the results given by Mr. Rickman from the Census of 1831 ; and further modified, as to ages above 90, by the *Swedish* and *Duvillard's T.* We shall speak of this T. in more detail under EDINBURGH LIFE, COMPOUND MORT. T. PREPARED FOR THE. It will be obs. that the T. is not now used in the valuations of the Co. It was first made known in a pamph. pub. in Edin. in 1836 : *Tables of Mort. and of Premis. founded thereon : adopted by the Edin. Life Assu. Co. from 25 April, 1836.*

In 1837 Mr. Alex. McKean pub. his *Exposition of the Practical Life T.*, etc., wherein he comments upon the plan of distribution of surplus adopted by this Co. He says :

The principles upon which a preference is given to this plan are clearly stated in a very able pamph. by James Brown, Esq., Accountant, Edin. The author, in taking this opportunity of respectfully recording his dissent both from these principles and the reasoning by which they are maintained, begs leave to state that, aware as he is of the high authority by which the plan in question, as forming a correct rate for the allocation of the surplus funds of a life assu. so., is supported, he would hesitate very much indeed to express a counter opinion, if the most mature consideration in his power had not led him to doubt in the strongest manner both the correctness and equity of the rule. Its expediency as a rule of division may be assailed on grounds which lie much more on the surface of the question.

He intimated his intention of pub. an essay having for its "exclusive object an examination of the comparative merits of the various plans of division, with an attempt to ascertain the true principle by which such divisions of profit should be regulated." This essay never appeared ; and the Man. of this Co. continued to adopt the plan they had so carefully matured.

On the 31 Aug. 1838, the Co. completed its 15th year of existence. Its ins. in force at that date was £810,000 ; its income from premis. £28,000 ; its Life Fund, £143,300 (exclusive of Annu. Fund). It had a reserve fund in add. of £74,000. The Man., Mr. G. L. Finlay, made on this occasion a special rep. to the directors on the position of the Co. From this we propose to take a few passages :

It is gratifying to find that the great increase experienced in the Co.'s transactions after the investigation of 1835 has not been temporary or accidental ; and that the bus. of the year just ended has even exceeded that of the previous one. On new ins. effected since the investigation referred to, the average for the last 3 years is equal to double the average of the preceding 9 years. In the existing competition for bus., and considering the alluring representations so largely made by other offices, the success thus exhibited must be viewed as arising from the confidence placed by the public in the stability of the Co. . . .

The great desideratum in ins. bus. is to combine the permanent advantage now referred to with the least sacrifice of premis. on the part of assurers. In the arrangement of the Co.'s rates this important object has been steadily kept in view. On young and middle lives the premis. charged by the *Edin.* life are greatly lower than those of most other offices, and no charge is made for entry-money—an exaction which is obviously another mode of increasing the first year's prem. . . .

It has been stated as the peculiar advantage of the mut. assu. system, that profits are thereby laid aside for the benefit of the assured, which in proprietary offices are appropriated to the partners. If this were so, it would follow that the Assu. Fund of this Co., after deduction of the profit trans. to the Proprietors' Fund in 1835, must be unable to bear a comparison with any successful mut. assu. office. Such, however, is not the case ; and on investigation the directors will be satisfied that if the Co.'s

bus. shall advance as it has hitherto done, it will be able to give advantages to the assured equal to those of any mut. office of the same standing and extent of bus. . . .

After stating that the average rate of int. realized during the past 3 years upon its investments had been £4 16s. 6d. p.c., the rep. proceeds :

One of the innovations of the present day, held out as an attraction to assurers, is the system of making periodical divisions of profits, triennially or quinquennially, instead of at longer intervals. The experience of this Co. shows the improprieties of divisions at short periods. *The variation that has occurred in the number of deaths in different years has been so great that no reliance could be placed on an investigation comprehending only 3 years.* The average number of deaths in one period of 3 years has been double the average of a period of other 3, so that any triennial distribution of profits would have involved great inequality and injustice. A quinquennial division would have also been unequal, though not to the same extent. On the other hand, it is satisfactory to observe how nearly an average mort. may be calculated on by adhering to the period of division generally adopted. . . .

The remainder of the rep. is devoted to a comparison between the position of the Co. and the *Scottish Widows' Fund* ; and indicates a strong feeling of rivalry between the two asso. at that date.

The next investigation for surplus fell to be made in 1842. A detailed rep. was prepared for the occasion, and printed. From this we draw one passage only :

It will be recollected that at the last investigation the directors, anxious to exercise the utmost caution in everything connected with the declaration of their first bonus, recommended that the actual vesting of the rev. value should be postponed for 3 years, giving to the pol. which should become claims within that period only the present value, with 3 p.c. int. The directors are happy to say that in the present investigation they consider such precaution unnecessary, and therefore they propose that the full rev. bonus now declared shall be held to have vested at 31 Aug. last, and be payable along with the amount of each pol. whenever the claim arises.

A prosp. issued by the Co. in 1843 recounts some of the bus. purposes of Life Ins. :

To the possessor of an entailed estate life assu. affords the means of securing an increased jointure to his widow, and of making provision for the younger branches of his family. It enables life-renters, farmers, and others, who may find it necessary to embark money in stock or improvements which it may require some time to realize, to secure to their families the repayment of such advances. It facilitates the means of raising money on loan ;—of making, or perfecting settlements on marriage ;—of securing the payment of doubtful debts ;—of enabling proprietors of landed estates, and other persons whose property is charged with portions, or other incumbrances, payable on events connected with the termination of their own lives or the lives of others, to answer those charges when they fall due ;—of securing to parents or guardians the return of advances made for their children or wards in the event of premature death ;—of reimbursing to the purchaser of any office or annu. the sum paid for such office or annu., on the death of the person on whose life it depends ;—of rendering *contingent* property nearly equal in point of security with *absolute* property ;—and in general, it offers the means of indemnity against any pecuniary loss, claim, or inconvenience, to which an individual may become subject through the death of another ;—in all of these cases the advantages of life assu. are self-evident.

Independently of the peculiar benefits of life assu., there are many who consider it an *eligible way of investing a portion of their ann. income*. The low rate of int. allowed by the banks, and the difficulty of finding investments for small ann. savings, render it very desirable to obtain the benefit of the facilities enjoyed by life assu. cos. for securing the highest rate of int. with the important advantage of *compound accumulation*.

On 17 Dec. 1844, an address was delivered by the Man. to the Agents of the Co., then assembled in Edin. This was printed, and is called : *Address by the Directors to the Agents of the Edinburgh Life Assu. Co.* Its opening para. tells its own tale :

The directors of the *Edin. L. Assu. Co.* have requested the present meeting for the purpose of having a personal interview with the agents, to enable them to obtain information as to the general bus. of the Co., and to give the directors an opportunity of consulting with and hearing the views of the agents as to the best means of extending the influence and promoting the general prosperity of the Co.

The Co. then had 45 agents in Scot., 25 in Eng., but none in Ireland. "They have been deterred from attempting any such extension by the conviction that the bus. to be obtained at home is much safer, and, though limited in amount, will ultimately be found the most profitable."

The several funds of the Co. on 31 Aug. 1844, stood as follows: Life Fund, £216,708; Appropriated Fund, £46,969; Annuitants' Fund, £40,099; the Guarantee or Proprietors' Fund, £84,871; total, £388,649.

In 1845 the Co. obtained a further Act of Parl.—8 & 9 Vict. c. lxxvi.—*An Act for conferring on the Edin. Life Assu. Co. certain privileges of a corp. body, and as such to sue and be sued, to hold property, and for other purposes relating thereto*. The previous Act of the Co. was repealed; and the Co. was incorp., subject to the liabilities of the shareholders remaining as before. A memorial of shareholders ["partners"] to be regis. in the "Books of Council and Session at Edin." within one year after the passing of the Act, "and whenever there shall be a change or new appointment of any Man. or Sec., or of the whole or any of the Directors of the Co., or when any trans. of shares of any member shall be made." This regis. to be sufficient, "notwithstanding that the provisions of any other Act may prescribe a different form or manner of regis." (s. 7). Discharge for pol. becoming claims to be made on back of pol. (s. 12). Power to make bye-laws (s. 17). Co. not to be exempt from provisions of any future "Gen. Act which may be passed during the present or any future Session of Parl. which may affect life assu. cos. formed previous to the passing of such Gen. Act" (s. 18).

In 1847 the Co. took over the bus. of the *Glasgow Life Assu. Co.*, which had been founded in 1845, and the bus. of which was very small.

In 1849 the 3rd investigation for surplus took place. Its results exhibited "a progressive increase in every department of the Co.'s bus. The bonus declared "is not only large in itself, but will bear a favourable comparison with that of any other co. or so.":

In duly estimating the bonus now to be declared, it must be kept in view that the plan of division adopted by this office not only differs from that of the other Scotch offices, but is so dissimilar as not to admit of any exact contrast being drawn between them. While other offices generally give a fixed rate, being a per-centage for each year, upon the amount assured, and equal at all ages, this Co. acts upon what it considers a much more equitable plan, and distributes the bonus according to the age of the party, and the duration of the pol. for years and months, so that each pol. shall receive a share of the profits exactly proportioned to the amount it has contributed to the prosperity of the Co.

The Proprietors' Guar. Fund after this division reached £104,300. A bonus of £2 10s. p. share was added; making, with a like bonus in 1842, £15 p. share paid up.

Various further alterations were made in the Deed on this occasion. The directors were empowered to declare "prospective bonuses" between the regular periods of investigation in the case of pol. becoming claims, "in no case to exceed three-fourths of the rate of the previous septennial investigation." But still more important, the proprietors altered the proportion of profits to be distributed to parti. pol.-holders from *four-fifths* (as it had been fixed in 1835) to *nine-tenths* from this time forward.

In 1856 the 4th investigation for surplus took place, and Mr. James Brown was again called in to the investigation, and made a rep. thereon; wherein, after recapitulating and still adhering to the principle of division which had been orig. adopted, he adds:

It is a comfortable reflection, arising from the recent investigation, that good profits may be realized from a moderate bus. The reporter would be far from insinuating that a large bus., judiciously conducted, is not desirable: on the contrary, all due efforts should be made to extend the Co.'s bus. But extent of bus., which seems to be the great boast now-a-days, is no proof of success in ins., any more than in other departments of trade. The grand point is—how stand the funds to meet the engagements? If, in acquiring or maintaining a large bus., the extra profit be consumed by expenses, or if undue losses from deaths ensue, the position is a false one; the success nominal, not real; and time, which proves all things, will bring a day of disappointing and painful reckoning.

In 1858 the Co. obtained an add. special Act of Parl.—21 Vict. c. iii.—*An Act for conferring add. powers and privileges on the Edinburgh Life Assu. Co.*; short title, "The Edin. Life Assu. Co.'s Amendment Act, 1858." It gave powers to appoint local boards in Brit. Colonies in N. America; and provided for execution of pol. and deeds by such local boards.

The 5th investigation into surplus took place in 1863. The directors frankly admit in their rep. that in consequence of heavy claims under life pol., and some loss on one class of securities, the results were not quite as increasingly satisfactory as on some former occasions; but they regarded these circumstances as temporary—a view fully borne out by the results of the next septennial investigation.

In 1866 Mr. Finlay retired from the position of Man., and Mr. David MacLagan was appointed his successor. The large increase in the ann. amount of new bus. since that period is an evidence of the judgment displayed by the directors in making that appointment. Mr. William Dickson, who had been Sec. of the Co. for some years, retired in 1867. Mr. John Craig and Mr. David Deuchar are now Joint Secretaries and Act.

In 1868 the financial year of the Co. was made to close on 31st March, instead of 31st Aug. as previously—the effect was to take from that year 5 months—which must be remembered in all succeeding comparisons of yearly results.

In 1871 the 6th investigation for surplus took place. This in the ordin. course would have fallen in 1870; but as the year 1868 had been shorn of its usual proportions in the manner stated, it was resolved to take the investigation as at the close of 31st March, 1871, being 7 years and 7 months from the date of previous investigation. The results were highly satisfactory, as will be seen from the T. given at the end hereof.

The returns on this occasion were made in conformity with the Life Assu. Cos. Act, 1870, and from them we draw the following details:

The valuation and the division of profits have been made on the following principles:—1. The ordinary whole-term assu., and the immediate annu. on single lives, have been valued in classes according to age. Other assu. and annu. have been valued singly. 2. In the case of assu. the age was taken as the age next birthday on 31st March, 1871; and in the case of annu., as the age last birthday. Lives assu. at rates for an increased age on account of family or personal weakness, have been treated in the valuation as if the increased age at entry had been the actual age. In the case of one annuity, an increased age was also assumed. 3. In cases in which an extra prem. had been charged for foreign residence, for voyaging, or for employment, a proportion of the extra prem. was set aside to meet the risk for the unexpired period. The next payments of prem. in the case of ordinary assu. were held as due 6, 3, or 12 months after the date of valuation, according as the prem. were payable yearly, half-yearly, or quarterly. All other assu. were held as having yearly prem., with the next prem. due six months after the date of valuation. The valuation has been strictly what is called a *net* or *pure* prem. valuation.

The principles upon which the valuation of pol. is made are not fixed by the contract of Co-partnership, nor by any regulation or bye-law of the Co., but are left to the discretion of the directors—the contract directing that the valuation is to be made "according to such data as the court of directors shall consider fair and equitable." The regulation of the allotment of pol.-holders' share of profit is vested in the court of directors.

The profits have been divided among the pol.-holders in proportion to the accumulated net prem. in each case, under deduction of the value of the pol. Assu. with increasing prem. received half the amount of bonus during the first term of payment;—all other assu. on single lives were treated as ordinary pol. In fixing the ratio of parti. assu. which had already participated were held as if effected at the date of last valuation at the age then attained. The *net* prem. and the *value* of pol. used in fixing

the ratio were deduced from the original T. calculated for the Co., on which the prem. were based. The sums thus apportioned were converted into add. to the pol., payable along with the amounts originally assu.

Pol. on unhealthy lives have been valued at the investigation at the advanced ages corresponding to the rate of prem. charged, and in the return under heading No. 2 they are dealt with in the same manner. In valuing such pol. for surrender, however, the actual ages are taken.

The T. of Mort. and the rates of int. used in the valuation were:—For ordinary whole life assu., the *Experience* T. No. 2 (1863), with int. at $3\frac{1}{2}$ p.c. For special assu. and contingent annu. the *Carlisle* T., with int. at 3 p.c. For immediate and deferred annu., *Falinson's* Gov. Annu. T. for males and females, int. at 4 p.c.

As to surrender values:

The Co. has since last investigation allowed for the surrender of ordinary whole-term assu., in the case of parti. pol. 75 p.c., and in the case of non-parti. pol. $67\frac{1}{2}$ p.c. of the net values of the pol. deduced from the T. used in the formation of the premis. The Co. has never been asked to give a surrender value for endowment. In the case of endowment assu. the value allowed has never been less than 75 p.c. in the case of parti. pol., and $67\frac{1}{2}$ p.c. in the case of non-parti. pol., of the net value deduced from the T. used in the formation of the premis., but in many instances larger values have been allowed.

The rate of int. realized on investments had varied as follows: 1864, £4 13s. 5d. p.c.; 1865, £4 12s. 5d.; 1866, £4 10s. 4d.; 1867, £4 8s. 1d.; 1868 (7 months), £4 7s. 3d.; 1869, £4 6s. 5d.; 1870, £4 7s. 11d.; 1871, £4 8s. 1d.

The paid-up cap. at this date stood at £75,000. i.e. £15 p. share. The proprietors div. and reserve fund reached £30,610—together £105,610.

The total of the sums which have been ins. by the Co. up to 31 March, 1873, is £9,300,000. The claims paid have exceeded £2,000,000. The bonus add. to past and present pol. exceded £700,000.

The general features of the Co. are exceedingly liberal, especially in the important matters of foreign travel and residence; while non-forfeiture pol. are granted on surrender after payment of one prem. Pol. of 5 years' standing become in effect indisputable. In a word, the Co. is in every respect first class, and justifies in its results the anxious and conscientious care with which all its early steps were regulated. The following T. brings up in a condensed form the financial hist. of the Co. We have to thank the management for the considerate care with which every official document requisite for the composition of this sketch has, by anticipation, been placed at our disposal.

Table showing the leading financial features of the Co. as exhibited at each of its septennial investigations for surplus.

Year ending 31 Aug.	New pol. issued in the year.	Insuring.	New premis.	Total income.	Total pol. in force.	Total ins. in force.	Life Ins. and Annu. Fund.	Surplus distributed.	Total claims paid from commencement
1835	61	£ 45,553	£ 1613	£ 31,065	750	£ 608,500	£ 116,946	£ 22,732	£ 79,130
1842	117	141,104	4759	63,082	1304	1,278,271	239,023	29,321	217,132
1849	147	145,010	5267	80,538	1724	1,606,745	451,822	75,220	300,392
1856	318	182,203	4961	102,605	2785	2,158,534	639,302	112,689	698,991
1863	456	289,327	9411	137,421	4166	2,800,651	824,843	111,150	1,143,036
1871	715	426,009	11,758	161,825	6301	3,419,295	978,748	128,741	2,000,000
31 Mar.									

EDINBURGH LIFE, COMPOUND MORT. T. PREPARED FOR THE.—In 1836 there was prepared for and adopted by the *Edinburgh* Life a scale of premis. deduced from a Mort. T. compounded of the *Northampton* T., the *Carlisle* T., the *Equitable* Experience Tables of Davies and W. Morgan; these were combined with the results of Rickman's General Pop. and Parish Regis. Abstract, embodied in his Rep. of the Census, 1831; while the results at ages above 90 were modified by the *Swedish*, and *Duillard's* T. We obtain our knowledge concerning this T. from a pamph. pub. in 1836, *Tables of Mort. and of Premis. founded thereon, adopted by the Edinburgh Life Assu. Co. from 25 April, 1836.* The author says:

The subjoined T. of Mort., from which the annexed rates of prem. now proposed to be adopted have been calculated, has been obtained by taking advantage of the best recent information connected with the subject, in add. to the data formerly employed in the construction of prem. tables.

He then proceeds to enumerate the *Northampton*, the *Carlisle*, the *Equitable* Experience Tables by Davies and by W. Morgan; and finally reaches Rickman's Gen. Pop. and Parish Regis. Abstract, of which he speaks as follows:

By far the most extensive data for ascertaining the ordin. mort. among the inhabitants of Gt. Brit. have lately been given in the returns made under the authority of an Act. of Parl. "for taking an account of the pop. of Gt. Brit., and of the increase and diminution thereof," and which were pub. by order of the H. of Commons in 1833. Mr. Rickman's Abstract, taken from these returns, gives the mort. of the whole pop. of E. and W. between the years 1813 and 1830, during which period the number of deaths amounted to nearly 4,000,000. The materials in this work, after undergoing a very careful examination, and receiving such corrections as were necessary to adapt them to the object in view, afford the basis of a Mort. T. greatly more extended and more valuable as a general T. than any that has hitherto been pub.

We are next informed of the processes employed in reducing these several elements into one T. :

It having been assumed that the above T. contain the best materials for constructing a new T. of Mort., the following mode has been adopted for obtaining the result. Each of the 5 T. has been separately reduced to the same standard by ascertaining its relative intensity at each different age, or, in other words, the number dying each year out of the same number assumed as living at the commencement of that year, and an average of the whole having been obtained, the Mort. T. as now given has been constructed from this average intensity. The T. formed from the pop. of Sweden, and M. Duvillard's T. from the pop. of France, both as given by Mr. Milne, were combined with the Carlisle and Rickman's T. in fixing the intensities for ages above 90.

The reasoning in support of the T. is as follows :

If the Northampton T. be held as tending to raise the mort. too high, it will be recollected that it affects the result only to the extent of one-fifth, while this is more than counterbalanced by the Carlisle T., and the double effect given to the Equitable Experience, which compose three-fifths of the average; the remaining one-fifth being a sort of medium betwixt these extremes, which may be held as representing the fair ordin. prob. of life through the whole pop. of the kingdom. In the formation of such a T. the errors in any one of the ingredients are corrected by the others, and on this account the annexed T. is submitted as less likely to be erroneous, and better adapted for all purposes connected with the bus. of ins. offices than any of the presently existing T.

The doctrine here enunciated has been demurred to by some writers of authority; others concur. Finally we have a declaration of the object of the T. :

The object of the present pub. is to exhibit what is considered as the lowest rate of prem. which can be adopted, consistently with safety to the offices. While a continued competition among offices, as to which of them shall attract the public, by charging the lowest rate of prem., must necessarily endanger the solvency of the offices themselves, it cannot fail also to have the effect of destroying the confidence of the public, and thereby diminishing the benefits arising from the increase of L. assu. bus.

Table showing the general results deduced from the preceding data and method—Int. $3\frac{1}{2}$ p.c.

Age.	Number living.	Dying.	Expectation.	Value of an annu. of £1.	Single prem. "loaded" to ins. £100 without parti.	Ann. equalized prem. "loaded" to ins. £100 without parti.	Age.
				£	£ s. d.	£ s. d.	
10	100,000	607	46.527	20.7717	...	...	10
11	99,393	598	45.808	20.6300	...	...	11
12	98,795	608	45.082	20.4813	...	...	12
13	98,187	613	44.358	20.3294	...	...	13
14	97,574	635	43.634	20.1732	31 4 10	1 9 6	14
15	96,939	670	42.916	20.0160	31 16 6	1 10 4	15
16	96,269	707	42.211	19.8607	32 8 1	1 11 1	16
17	95,562	745	41.520	19.7079	32 19 5	1 11 11	17
18	94,817	781	40.842	19.5579	33 10 7	1 12 8	18
19	94,036	809	40.177	19.4106	34 1 7	1 13 5	19
20	93,227	829	39.522	19.2643	34 12 5	1 14 2	20
21	92,398	840	38.872	19.1174	35 3 4	1 15 0	21
22	91,558	848	38.224	18.9680	35 14 6	1 15 10	22
23	90,710	851	37.576	18.8154	36 5 10	1 16 8	23
24	89,859	857	36.928	18.6583	36 17 6	1 17 6	24
25	89,002	863	36.278	18.4973	37 9 6	1 18 6	25
26	88,139	872	35.629	18.3322	38 1 9	1 19 5	26
27	87,267	886	34.980	18.1634	38 14 4	2 0 5	27
28	86,381	902	34.333	17.9919	39 7 1	2 1 6	28
29	85,479	918	33.690	17.8182	40 0 0	2 2 6	29
30	84,561	930	33.051	17.6420	40 13 1	2 3 7	30
31	83,631	937	32.413	17.4625	41 6 6	2 4 9	31
32	82,694	943	31.774	17.2785	42 0 2	2 6 0	32
33	81,751	949	31.135	17.0895	42 14 3	2 7 3	33
34	80,802	956	30.495	16.8953	43 8 8	2 8 7	34
35	79,846	967	29.854	16.6960	44 3 6	2 10 0	35
36	78,879	979	29.214	16.4923	44 18 8	2 11 5	36
37	77,900	992	28.575	16.2840	45 14 2	2 12 11	37
38	76,908	1006	27.937	16.0713	46 10 0	2 14 6	38
39	75,902	1022	27.300	15.8543	47 6 1	2 16 2	39
40	74,880	1038	26.666	15.6332	48 2 7	2 17 11	40
41	73,842	1053	26.034	15.4078	48 19 4	2 19 9	41
42	72,789	1067	25.403	15.1778	49 16 5	3 1 7	42
43	71,722	1079	24.774	14.9427	50 13 11	3 3 7	43
44	70,643	1090	24.145	14.7019	51 11 10	3 5 9	44
45	69,553	1098	23.515	14.4549	52 10 2	3 8 0	45
46	68,455	1104	22.884	14.2008	53 9 1	3 10 4	46
47	67,351	1110	22.251	13.9387	54 8 7	3 12 11	47
48	66,241	1119	21.616	13.6683	55 8 9	3 15 7	48
49	65,121	1135	20.979	13.3898	56 9 5	3 18 6	49

Age.	Number living.	Dying.	Expectation.	Value of an annu. of £1.	Single prem. "loaded" to ins. £100 without parti.	Ann. equalized prem. "loaded" to ins. £100 without parti.	Age.
				£	£ s. d.	£ s. d.	
50	63,897	1161	20.342	13.1043	57 10 8	4 1 7	50
51	62,826	1196	19.709	12.8136	58 12 4	4 4 11	51
52	61,630	1232	19.081	12.5194	59 14 3	4 8 4	52
53	60,398	1269	18.460	12.2219	60 16 4	4 12 0	53
54	59,129	1303	17.846	11.9211	61 18 9	4 15 11	54
55	57,826	1338	17.237	11.6163	63 1 5	5 0 0	55
56	56,488	1381	16.633	11.3077	64 4 4	5 4 5	56
57	55,107	1433	16.037	10.9967	65 7 6	5 9 0	57
58	53,647	1495	15.452	10.6855	66 10 8	5 13 11	58
59	52,179	1558	14.881	10.3764	67 13 8	5 19 0	59
60	50,621	1615	14.323	10.0701	68 16 5	6 4 4	60
61	49,006	1654	13.779	9.7660	...	...	61
62	47,352	1680	13.243	9.4609	...	...	62
63	45,672	1703	12.711	9.1522	...	...	63
64	43,969	1730	12.184	8.8394	...	...	64
65	42,239	1763	11.663	8.5235	...	...	65
66	40,476	1794	11.149	8.2061	...	...	66
67	38,682	1820	10.643	7.8872	...	...	67
68	36,862	1842	10.144	7.5663	...	...	68
69	35,020	1871	9.651	7.2431	...	...	69
70	33,149	1904	9.167	6.9197	...	...	70
71	31,245	1948	8.696	6.5983	...	...	71
72	29,297	1991	8.241	6.2833	...	...	72
73	27,306	2027	7.805	5.9774	...	...	73
74	25,279	2043	7.391	5.6827	...	...	74
75	23,236	2030	6.997	5.3987	...	...	75
76	21,206	1985	6.619	5.1226	...	...	76
77	19,221	1919	6.250	4.8494	...	...	77
78	17,302	1848	5.888	4.5758	...	...	78
79	15,454	1783	5.532	4.3023	...	...	79
80	13,671	1716	5.189	4.0337	...	...	80
81	11,955	1650	4.862	3.7741	...	...	81
82	10,305	1565	4.560	3.5316	...	...	82
83	8740	1464	4.287	3.3097	...	...	83
84	7276	1333	4.049	3.1148	...	...	84
85	5943	1181	3.845	2.9470	...	...	85
86	4762	1013	3.675	2.8065	...	...	86
87	3749	843	3.533	2.6897	...	...	87
88	2906	683	3.413	2.5914	...	...	88
89	2223	542	3.308	2.5061	...	...	89
90	1681	422	3.213	2.4301	...	...	90
91	1259	323	3.123	2.3582	...	...	91
92	936	244	3.028	2.2830	...	...	92
93	692	183	2.919	2.1961	...	...	93
94	509	136	2.789	2.0902	...	...	94
95	373	102	2.623	1.9521	...	...	95
96	271	76	2.423	1.7809	...	...	96
97	195	59	2.172	1.5616	...	...	97
98	136	44	1.897	1.3175	...	...	98
99	92	32	1.565	1.0157	...	...	99
100	60	22	1.133	.6119	...	...	100
101	...	...	0.500	...	...	...	101

The T. was constructed on Barrett's columnar method. The money values were calculated at $3\frac{1}{2}$ p.c. int.; the percentage and method of "loading" are not recorded. Again, by whom the T. was conceived and executed does not appear. The idea of such a compound T., if not actually suggested by Mr. Grut, or any other actuary, consulted by a deputation of the directors, who, with the man, visited Lond. about this period, may have been regarded as a fair compromise or solution of a difficulty. The T. appears to have been constructed in the office by the Co.'s staff. It is accompanied by an "explanation of the construction and use of the preparatory T. formed on Barrett's principle," and indicates considerable familiarity with the subject. The formulæ employed are also set forth with care and distinctness. There is in a word evidence of great care, and of an overwhelming desire that the operations of the Co. should be absolutely safe.

The following abstract shows the number living out of 10,000 assumed to be alive at the age of 10, according to the different T., at the under-mentioned ages :

Age.	Northampton.	Carlisle.	Equitable Experience.		Rickman.	New Table.
			Davies.	Morgan.		
10	10,000	10,000	10,000	10,000	10,000	10,000
20	9043	9427	9511	9282	9353	9323
30	7727	8734	8794	8610	8455	8456
40	6405	7856	7862	7844	7583	7488
50	5034	6807	6811	6922	6641	6399
60	3591	5639	5359	5592	5501	5062
70	2171	3717	3615	3600	3848	3315
80	826	1475	1688	1400	1710	1367
90	81	220	229	134	252	168
100	...	14	...	...	14	6

The following abstract shows the comparative *ann. mort.* out of 1000 persons assumed to be alive at the beginning of each year, according to the different T., at the under-mentioned ages :

Age.	Northampton.	Carlisle.	Equitable Experience.		Rickman.	Swedish Pop. T.	Duvillard.	New Table.
			Davies.	Morgan.				
10	9'16	4'49	3'87	7'20	5'63	...	...	6'07
20	14'03	7'06	6'65	7'33	9'67	...	...	8'95
30	17'10	10'10	9'60	8'13	10'14	...	...	11'01
40	20'91	13'01	12'52	10'96	11'91	...	...	13'86
50	28'35	13'42	18'07	15'02	15'16	...	...	18'01
60	40'23	33'49	30'18	31'47	25'45	...	...	32'17
70	64'93	51'64	52'53	63'89	50'57	...	...	56'71
80	134'33	121'72	112'50	132'68	119'31	...	...	124'14
90	260'87	260'56	246'15	268'66	240'18	182'03	184'00	255'28
100	...	222'22	...	...	331'37	225'55	349'10	373'87

The preceding T. has not been used in the valuations of the *Edinburgh* Office for some years ; but they are not on this account less interesting. When they were employed, "Special Reserves" were made which brought the ins. fund up to about the same as would be required by *Experience* T. No. 1, at 3½ p.c. int.

EDINBURGH REVIEW.—The following articles on ins. topics have appeared in this able publication :

1814—*Essai Philosophique sur les Probabilités*. Par M. le Comte Laplace, vol. 23, p. 320.

1827—*A Comparative View of the various Inst. for the Assu. of Lives* (by Charles Babbage), vol. 45, p. 482.

1828—*Inquiries with respect to the Influence and Operation of National Debt and Taxes*, vol. 47, p. 59.

1829.—*Proposals for an Improved Census of the Pop.*, vol. 49, p. 1. [In this art. will be found some useful information regarding Mort. T.]

1832—*Observations on the Duties on Ins.*, vol. 55, p. 527.

1835—*On the Frequency of Shipwreck*, vol. 60, p. 338.

1857—*Human Longevity*, vol. 105, p. 46.

1859—*Life Assurance*, vol. 109, p. 37.

EDITTO POLITICO DI NAVIGAZIONE MERCANTILE AUSTRIACA.—The Austrian Code for Mercantile Navigation, promulgated 1816. [AUSTRIA.]

EDLESTON, MR., Fellow of Trinity Coll. Cambridge, pub. 1850 : *Correspondence of Sir Isaac Newton and Prof. Cotes*. Attached to it is a biography of Sir Isaac Newton, to which we shall have occasion to refer under LEASES. "This biography is in the form of annals, and besides containing a large quantity of new and curious matter, is of exceedingly convenient reference."—*De Morgan*.

EDMOND, A., was Sec. of Lond. branch *North of Scotland* for some years down to 1849.

EDMONDS, CRYST R., was Sec. of *Emperor F. and L.*, 1854.

EDMONDS, GEORGE H., has been for some years a town agent of the *National Provident*, introducing a very considerable bus. Mr. Edmonds is the type of a very limited class in this country who can make a handsome income out of the commission ordinarily paid for the introduction of Life and other ins. bus. in the U.K.

EDMONDS, RICHARD, Jun., Penzance, contributed to the *Statist. Journ.* 1839 (vol. 2, p. 198): *A Statistical Account of the Parish of Madron, containing the Borough of Penzance*. In this will be found some V. Sta. of a very interesting character.

EDMONDS, THOMAS ROWE, B.A. Cantab, was Act. of *Legal and General* from 1832 down to 1866, when he retired.

In 1832 he pub.: *Life T. founded upon the Discovery of a Numerical Law regulating the Existence of every Human Being; illustrated by a New Theory of the Causes producing Health and Longevity*. The author expounds his theory of the law of mort. on hygienic researches and comparisons, and by a mode of reasoning peculiarly his own. He found that the force of mort. could be reduced to an algebraical expression—which, however, bears a very close resemblance to the celebrated formula of Gompertz; so close indeed as to have led to some rather personal controversy, to which we shall have occasion hereafter to refer. Mr. Edmonds himself says: "The honour of first discovering that some connexion existed between T. of M. and the algebraic expression . . . belongs to Mr. Gompertz; but to arrive at this single point, his course of investigation differs so widely from mine, that appearances will be found corresponding to the reality—that my discovery is independent of the imperfect one of Mr. Gompertz" (p. xvii. and xviii.). Many of the T. given by Mr. Edmonds are of great interest. The work itself is quoted under various heads. A complete outline of the T. and of the data and principles of construction will be given under EDMONDS' (T. R.) MÉAN MORT. T.

Mr. Edmonds has contributed to the *Lancet* a series of papers, in which (*inter alia*) he has enunciated the method of determining the relative mort. of particular localities both with complete and with imperfect data. The following we believe to be a complete list of his papers in the *Lancet*:—

1835—*On the Mort. of the People of England.* [MORT. OBS.]

1835—*On the Law of Mort. in each County of England.* [MORT., LAW OF.]

1836—*On the Law of Sickness according to Age, exhibiting a double coincidence between the Law of Mort.* [MORT., LAW OF.] [SICKNESS, LAW OF.]

1836—*On the Mort. at Glasgow, and on the Increasing Mort. of England.* [ENGLAND.] [GLASGOW.]

1836—*Statistics of the Lond. Hospital, with remarks on the Law of Sickness.* [SICKNESS, LAW OF.]

1836—*Correction of Errors in Statistics at the Brit. Asso.*

1837—*Defence of an art. in the "Brit. Medical Almanack," entitled National Statistics.* [FINLAISON'S GOV. ANNU. T.]

1837—*On the Influence of Age and Selection on the Mort. of the Members of the Equitable Life Ins. So. during a period of 67 years.* [EQUITABLE SO., MORT. EXPERIENCE OF.] [SELECTION.]

1838—*On the Duration of Life in the English Peerage.* [PEERAGE, DURATION OF LIFE AMONG.]

1838—*On the Mort. and Sickness of Soldiers engaged in War.* [WARFARE, MORT. INCIDENT TO.]

1838—*On the Mort. and Diseases of Europeans and Natives in the East Indies.* [INDIA.]

1839—*The Lineage of English Peers of ancient titles exhibited by means of Diagrams.* [PEERAGE, ETC.]

1839—*On the Mort. and Sickness of the Artisans of Lond.* [OCCUPATION.] [SICKNESS.]

1842—*On the Mort. of the Members of the Amicable and Equitable Assu. Sos.* [EQUITABLE SO., MORT. EXPERIENCE OF.] [MORT. TABLES.]

1850—*An Inquiry into the Law which govern the Mort. of the People of England, founded upon Official Records of Births, Deaths, and Pop. for the last 70 years.* [MORT., LAW OF.] [POP., LAW OF.]

1850—*An Inquiry into the Law which govern the Mort. of the Pop. of Eng. in various Localities of Town and Country, founded upon Official Records of the Reg.-Gen.* [LOCALITY, INFLUENCE OF.] [POP., LAW OF.]

1854—*On the Law of Mort. and Sickness of the Labouring Classes of Eng.* [MORT., LAW OF.] [OCCUPATIONS.] [SICKNESS, LAW OF.]

Mr. Edmonds has also contributed the following papers to the *Assu. Mag.*:—

1851—*On the Law of Increase of the Pop. of England during the last 100 years* [vol. ii. p. 57]. [POP., LAW OF.]

1855—*On the Law of Mort. and Sickness of the Labouring Classes of England* [vol. v. p. 127]. [MORT., LAW OF.] [SICKNESS, LAW OF.]

1860—*On the Discovery of the Law of Human Mort., and on the Antecedent Partial Discoveries of Dr. Price and Mr. Gompertz* [vol. ix. p. 170]. [MORT., LAW OF.]

1861—*On the Law of Human Mort.; and on Mr. Gompertz's New Exposition of his Law of Mort.* [vol. ix. p. 327]. [MORT., LAW OF.]

1862—*On the Value of Mr. Gompertz's Formula for the Number Living in Terms of the Mort. according to Age, compared with the Value of a similar Formula pub. 1832* [vol. x. p. 104]. [MORT., LAW OF.]

In vol. ix. of *Assu. Mag.* (1860) there is a paper by Prof. De Morgan: *On an unfair suppression of due acknowledgment of the writings of Mr. Benjamin Gompertz*. In the

same vol. there is a letter : *On Mr. Gompertz's Law of Human Mort. and Mr. Edmonds' claims to its independent discovery and extension.*

In vol. x. of *Assu. Mag.* there is a further letter—really a paper—from Mr. Sprague : *On the Recent Imputations made as to Mr. Gompertz's accuracy.* Also a letter from Herr Wilhelm Lazarus, of Hamburg, on the *Law of Human Mort.*, bearing directly upon the controversy ; with a further paper by Prof. De Morgan, bearing the title : *Mr. Edmonds : College Life.* We shall have occasion to review the several points here involved under MORT., LAW OF.

Mr. Edmonds gave evidence before the Select Parl. Committee on Ins. Asso. 1853.

EDMONDS' (T. R.) "MEAN" MORT. TABLE.—In 1832 Mr. Edmonds pub., as we have seen, *Life T. founded upon the Discovery of a Numerical Law regulating the Existence of every Human Being : illustrated by a New Theory of the Causes producing Health and Longevity.* We propose to make the reader familiar with the author's views and theories as set forth in this work. He introduces the subject thus :

The foundation of the science of life measurement rests upon the observed relation of Dying to Living, in given intervals of age. In constructing a T. of Mort., the ordinary problem for solution is—given, this relation for large intervals of age ; required, to deduce and interpolate the relation of Dying to Living, corresponding to small intervals of age. In all T. which have hitherto been pub. this relation for ann. intervals is continually varying. Now it is manifest that the same principles which have led to the conclusion that the variation is continued and *ann.* must lead to the conclusion that the variation is monthly, and also to the conclusion that the variation is diurnal, and even *momental.* It may be assumed therefore that all T. of Mort. represent the relation of Dying to Living as changing continuously—that this relation is never the same for any two successive instants of age. I have used the term "*force of mort.*" to denote this relation at any definite moment of age. It would evidently be improper to use this term to express the relation of Dying to Living in yearly intervals of age ; for the force of mort. at the beginning, at the middle, and at the end of any year of age, are all different.

During the succession of years and moments, measured from the birth of any individual, the continuous change in the force of mort. is subject to a very simple law, being that of geometric proportion. *But the same geometric proportion is not observed from birth to the end of life.* Instead of one, there are three distinct orders of progression, corresponding to three remarkable periods of animal life. The force of mort. at all ages is expressible,—by the terms of three consecutive geometric series, so connected, that the last term of one series is the first of the succeeding series ;—or by the ordinates of three contiguous segments of three logarithmic curves. The common ratios of the three geometric series (or the constants of the curves) appear to be fixed and immutable, *for all human life in all ages of the world.* These 3 constants, now first discovered, correspond to the 3 grand divisions of life—Infancy, Manhood (or Floreſcence), and Old Age. For regulating the continuous change in the force of mort. Nature uses one constant for *Infancy*, another for *Manhood*, and a third for *Old Age.* The constant of infancy confirms life, or indicates a continued diminution of the force of mort. ; the constants of manhood and old age indicate decay of life, or a continued increase of the force of mort. ; but the decay of life is much more rapid in the period of old age than in the period of manhood.

He then proceeds to indicate the divisions of life which he has set up, in conformity with, or to, his theory, viz. : (1) *Infancy*—from birth to 8 years of age ; (2) *Manhood*—from 12 to 55 years of age ; (3) *Old Age*—from 55 to the end of life ; and he furnishes the formula assigned to their numerical values, "which indicate the rate of increase or decrease of the force of mort., in a given time, assumed to be one year." He adds by way of explanation : "The above constants of Manhood and Old Age are to be regarded as much nearer approximations to the truth than the constant of Infancy, by reason of the comparative shortness of the period of infancy, in conjunction with the imperfections of all records of mort." He then proceeds :

The existence of the above 3 remarkable periods of human mort. was long ago pointed out by Dr. Price ; but he does not appear to have imagined that the marked distinction was expressible in numbers. *There may exist a very small fourth period, between infancy and manhood, where the force of mort. is stationary, and at its minimum.* My assumption of the existence of this period, whether true or false, can be of little or no practical consequence.

If nature had immovably fixed the limits of the three periods of infancy, manhood, and old age, the theory would be complete and simple. Such, however, is not the case, either in different pop., or in the same pop. at different times. An attentive examination has impressed on my mind the belief that the durations of the infancy and manhood periods simultaneously increase or decrease. The defective existing materials may serve to estab. this fact, although they do not lead to the knowledge of the precise change in manhood due to a given change in infancy. I am inclined to the opinion that an increase of 1 year in the duration of infancy demands, under ordinary circumstances, an increase of 7 years in the duration of manhood ; under extraordinary circumstances I believe that the diminutions of either stage may be accompanied by the prolongation of the other. In all the best T. the limit of the infancy period appears to be at the age of 9 years, within half a year more or less ; and the limit of the period of manhood at the age of 55, within 7 years more or less.

He considers the knowledge of the cause producing this change in the position of the limits to be of very great importance in the prediction of *future mort. from the past :*

This cause is identical with that which hastens or retards the maturity of any animal : the simultaneous diminution of the stages of infancy and manhood is nothing more than the shortening of the circuit from birth to death. The cause, or the antecedents to change in the limits, will be found, most prob., to consist of variations of food, in labour, or in lodging (temperature). An abundant and nutritious diet, with continued repose in a pleasing temperature, contracts the stage of infancy and manhood ; while scanty and coarse food, or hard labour, or great exposure to cold or heat, increase the length of the two stages, by increasing the difficulties of travelling. The proposition may be better expressed thus : *saturation* accelerates, and *privation* retards maturation.

This opinion is supported by the obs. on human mort. hitherto recorded, or appears to be so. But this support is for the most part indirect ; for the larger portion of these obs. have been made on general populations, or the representatives of various degrees of *privation.* These show the limits of the stages of infancy and manhood to recede as *privation* diminishes. The only valuable and satisfactory obs. on the representatives of *saturation* are those of Deparcieux, on a great extent of French monks and nuns ; and they all confirm the theory, by the exhibition of the earliest known advent of the period

of old age (at 48 years). If the period of infancy had been observed, the corresponding limit would prob. have been found very near 7½ or 8 years of age. The unsatisfactory obs. made on English and on French Gov. annuitants lend their support (whatever it may be worth) to the theory.

So far preliminary. We now approach a description of the actual formation of the T.:

In the T. of Mean Mort. for Eng. I have assumed the termination of the infancy stage to be at the age of 8 years, and the termination of the period of manhood to be at the age of 55. In the selection of these limits I have been influenced more by authorities estab. in popular estimation than by my individual opinion. The termination of the infancy stage being a matter of little practical importance, I have trusted to the guidance of my theory alone in the fixing upon the period of 8 years. I have an add. support for selecting so early an age, in the commonly entertained opinion that the mort. of English infants has been diminished more than that of the rest of the pop. Such diminution can be accounted for only by the retrocession of the limit of infancy. The mort. of infants is a matter of very little moment to any European pop. with respect either to money or pop. The number of infants is not more than half so great as it might be; and the existing supply is not regulated in the slightest degree by any imagined future relation of food to surviving adults.

The termination of the manhood period is a point of considerable practical importance; and I could not select an earlier age than 55 without abandoning the support of all T. of value in the public estimation. In the *Northampton* T. this period terminates at 62; in the *Carlisle* obs. at 57 years of age. My disinclination to adopt the age of 55 has been diminished by the expectation that in an improved state of society this limit will be again attained, and even exceeded. Hitherto the stages of infancy and manhood have never been increased, except in connexion with an increase of mort. Presently I intend to show that these stages may be increased, and the mort. at the same time be diminished. The hopes of indefinite prolongation of the term of human life have now ceased to be visionary. The limiting age of manhood is variable for different classes of the pop. In Eng. I would place it, for a city pop. at 55; for the general pop. at 49 years of age. Those who have belonged to the monied class for some generations, and those who have recently entered from the labouring class will prob. have different limits of the life stages.

He then examines the limits of the 3 periods in 5 T. of Mort. In his own two T.—called respectively “Mean” and “City” mort.—the Infancy period terminates at 8, the Manhood commences at 12, and terminates at 55—when the Old Age period commences. In the *Carlisle* T. (which he terms the “Village” T.) the limits are 9, 10, and 55. In the “corrected” *Northampton* and *Stockholm* T. they are 9, 12, and 62. He adds:

In all these T. the force of mort. is made stationary for the short period between infancy and manhood: but in the village T. the force immediately after 10 differs slightly from the stationary force immediately before. The difference is accidental, the two portions of the T. before and after the age of 10 having been constructed independently of each other.

In forming a T. of mort. the essential point to be sought and ascertained is, the minimum rate of mort. and the portion of age to which it is applied. When this is known, the force at every other age may be found by the help of the three constants: and knowing the force of mort., the numbers remaining alive at yearly intervals may be deduced, which is the T. of mort. required. A slight degree of uncertainty would remain as to the exact time at which the old age period commences; because the increase in the duration of manhood, due to a given increase in the duration of infancy, is not yet precisely ascertained.

We now reach the more vital details of the T.:

As the basis of my chief T. I have selected the minimum rate of 1 death out of 160 living. This number coincides very nearly with the minimum rate of the Swedish pop. for 50 years, with the minimum rate of the Glasgow pop., and with the minimum rate of French monks and nuns for a long space of time. Moreover, this base gives a gross mort. between the ages of 20 and 50, little differing from that reported to have existed upon a great extent of English and French Gov. annuitants. The following are the minimum rates in the 5 T.—Village, .005; Mean, .0063643; City, .00795539; Northampton, .009; Stockholm, .0127286 (these numbers representing the quantity of deaths in one year from a unit of life). The ann. rates at birth in the same 5 T. are .1512228, .1457979, .1822474, .3049598, .4313017.

It may be alleged, in objection to the use of the new T. of mean mort., that it neither is, nor professes to be, the representation of any fact ever having had a specific existence in time, place, and pop.; but this would be no ground for esteeming it of inferior value with either the *Northampton* or the *Carlisle* T. Admitting the *Carlisle* and *Northampton* obs. to be perfect, they cannot be of any considerable value, except in combination with other obs., differing in time, place, and people. In all classes of a pop. the mort. is continually varying. Obs. of the past lead to no useful result, until a chain of connexion is estab. between the present, past, and future. To generalize from a single fact is absurd; and it would be an absurdity of this kind into which those people fall, who would apply obs. made on one kind of life to all kinds of life. It is perfectly irrational to apply the *Northampton* or *Carlisle* mort. to the present monied class of England without regard to the utter dissimilarity of the circumstances. One combination of circumstances may yield the same result as a different combination, but it ought never to be assumed that it would do so.

The new Mean T. of Mort. is the result of an extensive comparison of the best obs., in combination with the newly discovered theory of mort. Without the aid of this theory, which shows the connexion existing between the mort. at one age with that of every other age, the comparison would have been of low value. So much depending on the soundness of the theory, I shall proceed to make some remarks by which the public may determine the degree of confidence it may be entitled to. In the first place, I would state generally that the theory is best supported by the T. which have been always acknowledged as founded on the most complete materials, viz. the obs. made on the pop. at *Carlisle*; in Sweden at different times; in French convents at different times; and in Glasgow by Dr. Cleland. The T. founded on insufficient materials, or of questionable authority, most frequently support, and very seldom oppose the theory. I know but one T. (which is of the latter kind) which really and manifestly opposes the new theory; but this only at a particular portion of age, about 25 years in duration. It is that lately pub. of the mort. of Eng. Gov. annuitants. . . . The point on which the Gov. T. opposes my theory, as well as that of every other person, consists in declaring that from the age of 20 to 45 the force of mort. does not increase with the age; it even goes so far as to show that a man's chance of living one year increases in that period. A T. of the mort. of French annuitants presents an appearance of the same anomaly, though less in degree. . . . [GOV. ANNUITY T.]

There is a second point on which the universality of the new theory is subject to dispute, though of little practical consequence. In very early infancy, or below the age of 1 year, the theory in general appears to fail; in some cases the error is great, in others insignificant. But the error is always on the same side; the theory always gives a smaller proportion of deaths below 1 year than the obs. In most cases the difference is unimportant; in the Swedish obs. alone is the difference very great. The extraordinary appearance presented by the Swedish obs. may be attributable to inaccuracies in the returns of ages, or to some peculiarity in the treatment of infants. If intervals of 5 years of age be

taken, the Swedish agree with other obs. in infancy, made under various circumstances in different pop. A given degree of inaccuracy in the return of ages, which produces no sensible disturbing effect above the age of 10 years, may lead to very serious errors below that age, the error increasing as the age diminishes. *At present I think there are no obs. strong enough in accuracy to contend against the apparent universality of the theory.* Future and improved accuracy of obs. may demonstrate the inapplicability of the theory below the age of seven or eight weeks.

We finally arrive at a more distinct statement of the theory as follows :

The force of mort. at any age is measured by the number of deaths in a given time, out of a given number constantly living. The given time has been here assumed to be one year, and the given number living to be one person; consequently the algebraic sign for the force of mort. represents—the quantity of death in one year for a unit of life at the assumed age; or rather, since the force is changing continually, represents—the quantity of death on a unit of life which would occur by the action of this force continued uniform for the space of one year. The force of mort. is a simple function of the age, or time from birth.

At length we reach the T. compiled and constructed in the manner stated. We do not propose to place before our readers any other than the “Mean” Mort. T., which is the following. It may be best understood by reading backwards and forwards from age 12.

Table showing at the end of any number of years from birth the Living out of a given number born; also the Dying in the year succeeding; with the consequent Expec. of life.

Age.	Living.	Dying.	Expectation.	Age.	Living.	Dying.	Expectation.
0	146472.1	16647.2	38.6889	50	64027.2	1255.0	18.7387
1	129824.9	10169.2	42.6499	51	62772.2	1266.8	18.1134
2	119655.7	6420.0	45.2746	52	61505.4	1278.0	17.4864
3	113235.7	4144.1	46.8415	53	60227.4	1288.5	16.8575
4	109091.6	2715.5	47.6209	54	58939.0	1298.2	16.2260
5	106376.1	1797.5	47.8365	55	57640.8	1338.3	15.5915
6	104578.6	1198.0	47.6587	56	56302.5	1410.1	14.9621
7	103380.6	802.2	47.2110	57	54892.4	1482.8	14.3464
8	102578.4	650.8	46.5802	58	53409.6	1556.0	13.7447
9	101927.6	646.6	45.8776	59	51853.6	1629.2	13.1572
10	101281.0	642.5	45.1705	60	50224.4	1701.6	12.5840
11	100638.5	638.5	44.4589	61	48522.8	1772.6	12.0253
12	100000.0	643.8	43.7427	62	46750.2	1841.2	11.4812
13	99356.2	658.8	43.0262	63	44909.0	1906.6	10.9519
14	98697.4	673.8	42.3133	64	43002.4	1967.7	10.4375
15	98023.6	689.3	41.6042	65	41034.7	2023.6	9.9380
16	97334.3	704.8	40.8988	66	39011.1	2073.0	9.4535
17	96629.5	720.5	40.1971	67	36938.1	2114.7	8.9841
18	95909.0	736.5	39.4991	68	34823.5	2147.5	8.5296
19	95172.6	752.6	38.8048	69	32676.0	2170.2	8.0902
20	94420.0	768.9	38.1141	70	30505.8	2181.6	7.6657
21	93651.1	785.3	37.4270	71	28324.2	2180.6	7.2562
22	92865.8	801.9	36.7435	72	26143.5	2166.3	6.8614
23	92063.8	818.7	36.0635	73	23977.2	2137.9	6.4813
24	91245.1	835.6	35.3871	74	21839.3	2094.8	6.1158
25	90409.6	852.5	34.7141	75	19744.6	2036.7	5.7647
26	89557.0	869.7	34.0446	76	17707.8	1963.8	5.4277
27	88687.4	886.8	33.3785	77	15744.0	1876.5	5.1047
28	87800.5	904.1	32.7156	78	13867.5	1775.8	4.7955
29	86896.4	921.4	32.0560	79	12091.7	1662.9	4.4997
30	85975.0	938.8	31.3996	80	10428.8	1539.6	4.2172
31	85036.2	956.1	30.7462	81	8889.2	1408.2	3.9476
32	84080.1	973.5	30.0958	82	7481.0	1271.0	3.6907
33	83106.6	990.8	29.4484	83	6210.0	1131.0	3.4461
34	82115.8	1008.1	28.8037	84	5079.0	991.1	3.2135
35	81107.6	1025.3	28.1617	85	4087.9	854.1	2.9926
36	80082.3	1042.5	27.5223	86	3233.8	723.0	2.7830
37	79039.8	1059.5	26.8853	87	2510.8	600.3	2.5844
38	77980.4	1076.3	26.2505	88	1910.5	488.1	2.3964
39	76904.1	1093.0	25.6179	89	1422.5	388.0	2.2186
40	75811.1	1109.4	24.9873	90	1034.5	301.0	2.0507
41	74701.6	1125.6	24.3584	91	733.5	227.5	1.8923
42	73576.0	1141.6	23.7310	92	506.0	167.1	1.7431
43	72434.4	1157.2	23.1050	93	338.9	119.1	1.6027
44	71277.2	1172.5	22.4802	94	219.8	82.1	1.4707
45	70104.7	1187.4	21.8561	95	137.8	54.6	1.3468
46	68917.2	1201.9	21.2327	96	83.2	34.9	1.2307
47	67715.3	1216.0	20.6096	97	48.2	21.4	1.1219
48	66499.3	1229.5	19.9865	98	26.8	12.6	1.0203
49	65269.8	1242.5	19.3630	99	14.2	7.0	.9253

The mort. shown by this T. is about 20 p.c. greater than that shown by the *Carlisle T.* at every age. Out of 146,472 born alive, 100,000 attain the age of 12 years, 50,224 attain the age of 60, and 1702 die in their 61st year of age. In a stationary pop. wherein 100,000 attain the age of 12 every year, there are 903,374 constantly living between the ages of 20 and 30, and 8445 ann. dying in the same interval of age. For 100,000 living at all ages, 42,073 are between the ages of 20 and 50. Such are some of the teachings of this T.

Regarding the foregoing Table, after giving, in his own formula, the "equation to the curve of vitality," or rather "the form of the equation in each of the three segments of that curve," and after admitting that the honour of discovering that some connexion existed between T. of mort. and a particular algebraic expression belonged to Mr. Gompertz; "but to arrive at this single common point, his course of investigation differs so widely from mine, that appearances will be found corresponding to the reality—that my discovery is independent of the imperfect one of Mr. Gompertz"—which admission so qualified has given rise to a considerable controversy, as we have seen already, and shall see again—he proceeds, reiterating, to a considerable extent, statements already made:

The new theory is *universally* true. All valuable obs. made in Europe concur in proving its truth; and recent extensive and accurate obs. made on the Jamaica slave pop., of African parentage, are in conformity with it. Whence the conclusion is warrantable—that the new theory is equally applicable to the lowest as well as to the highest grade of humanity; and to the inhabitants of tropical as well as polar regions. The *proof* of the new theory is of the strongest possible nature, being *arithmetical*. By the help of the simplest rules of arithmetic any person may satisfy himself of the truth of the new discovery: he has only to compare the numbers in the T., which I have constructed on one common principle, with the numbers in the T. of highest repute, formed on no principle whatever. He will find the numbers correspond so nearly as to give results identical for long periods, and almost identical for short periods of time. In very few cases will he ever find the differences to be greater than such as would have occurred in T. formed by different persons from the same materials.

Positive arithmetical coincidence is not to be looked for; and if any such were adduced, it would tend rather to confute than to confirm the theory. The theory informs us what are the *chances* of living or of dying in a given time; but it does not tell us how many *must* die. According to the doctrine of chances there exists a high degree of improbability that in 60 throws with a six-sided die an ace will be thrown *ten times exactly*: although this number expresses the true prob., and is more likely to happen than any other which can be mentioned. In 600 throws the times of throwing an ace will approach nearer to the proportion of one-sixth than it would in 60 throws. Similarly with regard to the New Theory of Mort., as the number and extent of the obs. increase, the nearer is the approach to the true measure of the prob. of dying or living. But perfect coincidence is never to be expected even in nature, much less in erroneous records; and still less in T. deduced, by the erring judgment of individuals, from such erroneous records.

Mr. Edmonds contributed to the *Lancet* in 1836 a paper, *On the Laws of Sickness according to Age, exhibiting a double coincidence between the Laws of Sickness and the Laws of Mort.* In support of this view, he furnishes a T., the purport of which will be gathered from the following passage in the paper:

On inspection of the above T. of *relative* sickness and death, it will be perceived that for the three decennial intervals of age from 20 to 50, the coincidence between the theory and the observed facts is nearly perfect. Between the ages of 50 and 60 years there is an apparent, but no real opposition. For according to the theory of mort. a new rate of increase begins, or a new constant comes into operation at some variable age between 50 and 60 years. The above theoretical numbers are founded upon the assumption that the new constant comes into operation at the age of 55 complete years. If an earlier age (say 53) had been adopted, the theoretical numbers would have agreed with the facts for Eng. In the case of Scotland we have no information respecting the contemporaneous rate of mort. In Eng. the elevated ratio of sickness between 50 and 60 years coincides with the elevated ratio of mort. at the same age. The estab. of this coincidence between the law of sickness and the law of mort. is the main object of the present remarks. [SICKNESS.]

Mr. W. T. Thomson, in his "Proof-sheets," 1856, speaking of Mr. Edmonds' T., says, "Some of his views are ingenious and new. He and Mr. Gompertz appear to have pursued speculations very similar." Dr. Farr, in a paper, *On the Construction of Life T.*, etc., read before the Royal So. in 1860, speaking of Mr. Gompertz's hypothesis, says: "Mr. Edmonds, in 1832, extended the 'theory,' and applied it to the construction of three Life T. He gave an elegant formula, similar in principle to that of Mr. Gompertz, from which the curve of a Life T. can be deduced, upon the above hypothesis." Other writers have commented either upon the T. or upon the theory on which it is based; but these will be passed under review in our art. upon MORT. T., HYPOTHETICAL.

Mr. Edmonds declared his belief, before the Select Parl. Committee on Assu. Asso. 1853, that this T. represented more correctly than any other T. the mort. of insured lives.

EDUCATION.—There can be no doubt that education might be made an important medium for helping forward a proper understanding of the laws regulating individual and public health. Lessons on the importance of cleanliness in person and in dwelling; of temperance in eating and drinking; of sobriety in all things, should be inculcated from early youth. The destructive influence of smoking upon the mental faculties, as upon the physical constitution, in many cases, should be made clear. In a word, all should be taught lessons of health, in order that all may have a chance of living long and happy lives. What a revolution in these matters might be made even in one generation; and the good work would extend to all future generations! Have not ins. managers and agents a direct interest in promoting such influences?

EDUCATIONAL ANNUITIES.—A description of short-term annu. made payable during a certain fixed period in view of defraying the expenses of education. Examples of several descriptions of such annu. will be given under EDUCATIONAL FUNDS.

EDUCATIONAL ENDOWMENTS.—A species of Endowment Ins. made to fall payable during the period of youth, in view of meeting the expenses of education. These have been devised in various forms. They will be spoken of in detail under EDUCATIONAL FUNDS.

EDUCATIONAL FUNDS IN CONNEXION WITH INS. ASSO.—Schemes making provision for securing the education of children have become grafted on to ins. asso. in several forms. 1. By way of Endowment Ins., falling payable at given ages. 2. By means of annuities, to commence and continue during a certain period, over which the education is to extend. 3. By allocation of a certain portion of the ascertained surplus at each bonus investigation, to be applied to the education of the children of the insured. The term "School Endowments," or "College Endowments," is frequently indiscriminately applied to each of the preceding classes. We propose to offer a few illustrations under each head, placing the schemes in chronological order.

The *Clergy Mut.*, 1829, has an "Educational Annu." branch. Under it ins. may be made by clergymen or any other person for an annu. not exceeding £100, to be paid to the child or grandchild of a clergyman of the United Church of England and Ireland, or of the Protestant Episcopal Church of Scotland, according to the annexed T. The annu. are due at the end of 12 months after attaining the ages named.

If the child shall die previously to attaining the respective ages named in each class, or, in other words, before any annu. shall accrue, the prem. to be returned.

The Society has never transacted a large business of this class. In the year ending 31 May, 1855, it paid, however, no less than £2443 2s. 8d. for educational annu.

The *National Endowment and Assu. So.*, 1837, claimed to have inaugurated this class of bus. in Gt. Brit. Its prosp. says: "The T. relative to educational annu. and marriage endowments have been carefully prepared from orig. investigations and calculations, and present an entirely new feature in the history of Life Assu." Two T. are given, as follow:

1. Prem. to secure an annu. of £20 p.a. to each of the future children of a present marriage, to commence from the 14th year of age, and to continue until the 21st:

Age of the Husband.	Age of the Wife.	Ann. prem.	Half-yearly prem.	Quarterly prem.	Weekly prem.
For 13 years; but to cease on the husband's earlier death.					
Years.	Years.	£ s. d.	£ s. d.	£ s. d.	s. d.
24	18	17 6 6	9 3 0	4 13 4	7 4
25	21	16 18 6	8 15 6	4 9 7	7 1
31	25	16 5 6	8 9 1	4 6 4	6 10
36	30	14 2 3	7 6 6	3 14 9	5 11
43	35	11 18 6	6 3 6	3 3 0	5 0
52	40	9 8 6	4 16 7	2 9 9	3 11

The working of this scheme would be that for each of the future children of a marriage, say, between a gentleman aged 31 and a lady aged 25, an annu. of £20 might be provided, for a period of 7 years, in respect of each child who reached 14 years of age—the ann. prem. being £16 5s. 6d.; varying proportionately at other ages.

The working under this 2nd T. embraces much more problematic considerations than those involved in the first T.

2. Prem. to secure an annu. of £10 p.a. to each of the children of the future marriage of the nominee, to commence from the 7th year of age, and to continue until the 21st. The prem. payable for 13 years:

Age of Nominee.	Ann. Prem.	Half-yearly Prem.	Quarterly Prem.	Weekly Prem.
	£ s. d.	£ s. d.	£ s. d.	s. d.
3 months	6 15 8	3 10 10	1 16 7	2 10
1 year	8 5 6	4 6 8	2 4 6	3 6
3 years	9 6 0	4 17 2	2 9 9	3 11
5 "	10 3 10	5 6 3	2 14 4	4 3
10 "	12 10 2	6 10 4	3 6 7	5 3
15 "	15 7 3	7 19 10	4 1 8	6 5

Hence it was stated, "should no marriage occur, the nominee would be entitled to an annu. from any proposed age for the remainder of life."

The *Agriculturist* Life, etc., 1847, proposed to set aside 10 p.c. of its profits for the purposes of an "Education Fund," of which the following outline is given in the prospectus:

It is hardly possible to attach too much importance to this novel provision, whether reference be made to the prospectively large number of youth whom it may essentially aid, to the extended measure of Life Ins. it must induce among parents and guardians, or to the widely-spread influence it will acquire for the inst. amongst the various heads of schools, who participate in its benefit, will be (*sic*) constrained to advocate the merits of its sources. Every insurer for the whole term of life, for a sum of not less than £500, will have the right of nominating a youth of either sex, not less than ten years old, as a candidate for a contribution of £20 p.a. for a period of 3 years, to be applied strictly to the purposes of educating such youth, and to be paid by the inst. directly to the schoolmaster or schoolmistress having the care and education of such youth. The election will rest exclusively in those having the right of nomination, and who will be privileged to vote either in person or by proxy. It is confidently anticipated that, after a few years, very many scholarships of the above value will be perpetually in the gift of this So.

The Co., we believe, never made any profits; and for many years its shareholders have been suffering the torments of the Court of Chancery.

The *Trafalgar* L., 1850, purported to set apart 10 p.c. of its profits for an "Education Apprenticeship Fee, or Endowment Fund, for the children of the assured and shareholders." The prosp. said hereon:

The Education Fund is for the benefit of the assurers or shareholders whose circumstances may induce them to solicit and to require it, either for the education of their children or otherwise. If after having been assu. for 5 years, the prem. should, *in consequence of the more imperious and immediate claims of a family, become at any time too burdensome, the assured can apply to this fund for the education of his children*, and thereby be enabled to continue his pol.; thus securing their education, and, in the event of his death, their future comfort and maintenance. Even supposing an assurer were to die during the existence of his pol., and that the office had paid the claim, his widow and children would *still* have an interest in the annu. and educational funds, and be fully entitled to participate in them if at any time reduced.

We need perhaps hardly add that the Co. never made any profits.

The "*Waterloo* Life, Education, Casualty, and Self-relief Assu. Co." 1851, undertook to set apart 20 p.c. of its profits "to purposes of education in the two following ways":

(1) 10 p.c. for the education of the children of qualified assurers and shareholders; the manner of such education to depend upon the wishes and feelings of the parents; and (2) 10 p.c. for the sacred purpose of estab. foundation schools upon the pure principles of the Church of England, for the children of qualified assurers and shareholders.

This is but the outline of the scheme, which is developed in the prosp. of this Co.; the more complete details will be given in our hist. of the Co.

The *Educational and General*, projected in 1851, contained in its prospectus the following:

Educational Depart.—This novel and important feature, after mature consideration and deliberation on the part of the directors, assisted by the statistics bearing upon the question, has been brought to a practicable result, and will be one of the most useful in its operation, as it is one of the grandest in its conception of our social inst.

For feeding the hungry, clothing the naked, and succouring the distressed in all positions of difficulty and embarrassment, numberless inst. have been created, and are nobly doing their work; but strange to say, no adequate provision has been made for that enlightened cultivation of the mind which the rapid advances that modern society has made in civilization and mental improvement so imperatively requires.

To provide a remedy for so great an evil, this Co. has been formed; and to carry out their object in a manner most suitable to the wishes and feelings of the community, the directors propose to grant educational pol., by which parents may secure, on their children attaining a given age, say 7 or 8, an ann. sum for a certain number of years, say till the age of 14, by the previous ann. payment of a prem., which to them will be but a small deduction from a moderate income, and which the Co., from the principles on which it is based, will be enabled to grant, consistent with its security and the safety of the assu.

It is needless to enumerate the various classes of persons to whom this So. will be a great boon. The curate, the professional man, whose income is uncertain, the numerous body of clerks, mercantile or legal, those holding Gov. situations—in fact, all persons of limited incomes—will be enabled to insure to their children any kind of education proportionate to the prem. they can afford to set aside from their ann. incomes, until their children are competent to reap the advantages of their prudence and foresight.

The *Prince of Wales* Life and Educational Assu. Co., 1851, had an "Educational Department," and also an "Educational and Benevolent Fund," which were set forth in its prosp. as follows:

Pol. will be granted to enable parents or guardians to provide for the education of children on their attaining a certain age, or to defray the college expenses of young men during their stay at the universities. This novel system will confer a great benefit on a large portion of the middle classes, at present excluded from the advantages of superior education, and is strongly recommended by the directors as one of the most important features of the inst.

Then under the 2nd head:

The directors are empowered to set aside one-fifth of the net profits of the Co. for the purpose of granting annu. to decayed and indigent members; also for creating an accumulating fund for contributing to the education of their children. Five years with the Co., as a pol.-holder on the parti. scale, will constitute the requisite membership.

The *Counties Union* Life, etc., 1852, had a scheme of Educational Assu. Its prosp. said:

In this department it is proposed: 1. To assure ann. payments from birth or any other period for the

board and education of children until completion, whether at college or otherwise. 2. To render this educational branch of assu. a new and important application of the principle, more beneficial to the parties interested, the T. are so calculated for the benefit of the children who may become orphans during the educational period of the pol., that in the event of the death of the father, their board and education shall be continued to the end of the term assured for *without further payment of prem.* Other advantages also would be afforded on equitable terms; especially that a parent may assure expressly for the maintenance and education of the child from birth to any period, in case the father should die *before* the educational period commences; so that by this means orphanhood is completely provided for—not by the ordinary methods of charity, but by an equitable and prudent economy. A further advantage will be given to the parent whose child may not live to receive the benefits of the pol., by granting an abatement on the ann. prem. in case he should wish to secure another child on the Educational T. 3. The object of the Co. is also to secure to principals of schools the *regular and punctual* payment of their quarterly or half-yearly accounts at the office of the Co.: thus collaterally securing the benefit of an uninterrupted course of education to the child, and directly saving much time, anxiety, and expense to parents and tutors.

The following was the scale of ann. prem. to secure £30 a year for the education of a child from 9 until 14, in case the father should die at any time previous to the child attaining the age of 14:

Age of Father.	Age of Child.								
	0	1	2	3	4	5	6	7	8
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
30	2 5 9	2 4 6	2 3 6	2 2 9	2 2 3	2 1 11	2 1 8	2 1 5	2 1 2
40	3 1 11	2 19 7	2 17 9	2 16 3	2 15 0	2 14 0	2 13 3	2 12 7	2 12 1
50	4 7 11	4 5 0	4 2 3	4 0 0	3 18 0	3 16 3	3 14 7	3 13 3	3 11 11
60	8 10 5	7 19 9	7 12 0	7 5 9	7 2 3	6 18 0	6 14 3	6 10 9	6 7 6

The following further explanation is given :

If a father should assure on this T. for the education of his child, and by surviving the educational term, his child should not come on the funds of the Co. for support, the family will receive the benefit in the form of bonus on his life pol. in add. to the bonus he would derive from other branches of the Co.'s profits, as the profits of this branch will be divided among those who assure on this T.

The *Wellington Rev., Annu., and Life Assu. So., 1853*, had an "Educational" Branch, concerning which the prosp. contained the following :

It is admitted by all well-thinking persons that education is of the utmost importance; and it cannot be supposed that any parent would neglect to do all in his power to secure this great blessing to his family. There are many persons, however, who, although they consider education as one of the first principles of morality, cannot afford, when the time arrives, to educate their children in any liberal way. To meet these objections the *Wellington*, etc., has adopted a totally orig. system of educational annu., by which it will be seen that every obstacle can at once be easily set aside, and the great benefits of a sound education be secured, without heavy expense, uncertainty, or loss to any person, by taking out educational annu. with this So.

In order to introduce the subject, so that it may be easily understood, the system has been divided into 2 parts, called "School Annu." and "College Annu." The adaptation of each will speak for itself; and the rates of prem. for the separate divisions have been placed into two T., viz. I. and II., the advantages of which can, by this means, be more readily seen and determined.

The "School Annu." are arranged under several sections, as follow :

A. For Assuring an Annu. of £10 to a Nominee of the under-mentioned ages, the Annu. to commence at the age of 9 years, and to continue till the age of 15.			B. For Assuring an Annu. of £10 to a Nominee of the under-mentioned ages, the Annu. to commence at the age of 12 years, and to continue till the age of 18.			C. For Assuring an Annu. of £10 to a Nominee of the under-mentioned ages, the Annu. to commence at the age of 13 years, and to continue till the age of 20.		
Age of Child or Nominee.	Number of Ann. Payments to be made.	Quarterly Prem.	Age of Child or Nominee.	Number of Ann. Payments to be made.	Quarterly Prem.	Age of Child or Nominee.	Number of Ann. Payments to be made.	Quarterly Prem.
		£ s. d.			£ s. d.			£ s. d.
3 Mths.	9	1 3 11	3 Mths.	12	0 17 4	3 Mths.	13	0 18 1
6 "	9	1 4 1	6 "	12	0 17 5	6 "	13	0 18 2
9 "	9	1 4 2	9 "	12	0 17 6	9 "	13	0 18 3
1 Year	8	1 8 4	1 Year.	11	0 19 10	1 Year.	12	1 0 6
2 "	7	1 13 10	2 "	10	1 2 8	2 "	11	1 3 3
3 "	6	2 0 11	3 "	9	1 6 0	3 "	10	1 6 5
...	...	...	4 "	8	1 10 1	4 "	9	1 10 2
...	...	...	5 "	7	1 15 3	5 "	8	1 14 9
...	...	...	...	...	...	6 "	7	2 0 6

Another sec. of the T. gave the rates to be paid for the preceding benefits, but the prem. to be returned in the event of the death of the nominee before the age named for the commencement of the annu. The rates ranged from 20 p.c. on the younger ages down to 10 p.c. more than the above.

The "College Annu." come under two divisions, as follow :

For return of prem. in the event of death of nominee before age named for commencement of annu. an extra prem., ranging from 20 down to 10 p.c., was charged.

The *Anglo-Australian Insurance Asso.*, founded 1853, provided the following scheme :

X. Educational annu., from £5 to £150 per ann. Enabling parents or guardians to provide for the education of their children at respectable day or boarding schools, or even at college. The educational annuities are calculated for different periods to suit the circumstances of parents, and are made payable from the age of 8 years to 14; from 8 to 16; from 8 to 21; from 10 to 21; and from 14 to 21. The prem. are payable only till the child enters upon the annu.; but should the child die previously, the prem. would be returned.

XI. Educational endowment annu., for an ann. income from £5 to £350 for educational purposes, during given periods, and also a sum from £25 to £500,

payable at the expiration of the annuity, for business or professional purposes. The prem. to cease when the annu. commences, and all prem. to be returned should the child die before entering upon the annu.

The *British Nation*, 1854, had a scheme no less ambitious than that of founding a "Classical, Mathematical, and Commercial School," which was to be supported by 10 p.c. of the profits of the Asso. We have set forth the project in detail in our history of that Co.

The *British Alliance*, 1868, proposed a system of "Educational Annu.," of which we have given the outline, as it appeared in the prosp., in our hist. of the Co.

The talented author of *Life Assu.—its Schemes*, etc., pub. 1852, offered the following obs. on one class of these projects :

One of the new offices proposes to set aside a portion of its future profits to provide schools, etc., for the education of the children of its members. This smacks of the philanthropy of the grocer, who, while he professes to sell you his sugar one penny per pound cheaper than his neighbour and rival, remits you the penny in Scotch Snuff!!! It were wiser and equally philanthropic to give to the assurer his share of the profit, to be expended in his own objects, and in accordance with his own judgment.

EDUCATIONAL AND GENERAL LIFE ASSU. CO.—Projected in 1851, with a proposed cap. of £250,000, in 25,000 shares of £10. The preliminary prosp. said :

This Co. has been estab. for the purpose of combining the various advantages which of late years have been offered to the public generally, and the industrial classes more particularly, through the operation of assu. cos. and other inst. of a similar nature. To effect this object most completely, it is proposed that the bus. of this Co. shall embrace the following features:—1. All the ordin. bus. of a life assu. co., together with assu. against sickness, casualties, and old age. 2. The advance of money to its own shareholders and others upon approved security, for specified periods, with or without the auxiliary aid of a life pol. 3. The granting of pol. to secure the education of the children of the assured. 4. The objects of a guarantee so., enabling its members to avail themselves of the security of the Co. as a guar. for responsibility in places of trust or otherwise. 5. The philanthropic objects of a charitable so., by creating an accumulating fund of one-tenth of the net profits, to be applied to the support of decayed or indigent members of the Co., whether shareholders or assured, whose circumstances may justify their claims.

Among the general features of the Co., 60 p.c. of profits were to be divided among parti. pol.-holders—first quinquennially, then triennially. Annu. of "every description" were to be granted. One-half of shareholders' profits was to accumulate, in view of making the asso. mut. Then returning to the special features :

As an asso. against casualties, sickness, or old age, this Co. is intended to operate as a friendly or benefit so., enabling its members to secure a fund for their support during temporary or permanent inability, arising from accidents or sickness, to pursue their ordin. avocations in life, or when old age shall deprive them of the means of subsistence; in short, by bringing all the most advantageous forms of life assu. to bear in providing for those contingencies to which human life is invariably and universally liable.

Regarding its special "education" feature, we speak in detail under **EDUCATION FUNDS**. Regarding its fidelity branch there was nothing new. Then :

Lastly, as a charitable inst. it is proposed to set apart one-tenth of the net profits of the Co. to accumulate at int. and to be placed at the disposal of the directors, to enable them, when occasion may arise, to relieve such persons, being shareholders or insured in the Co., who, from unforeseen calamity or otherwise, having become impoverished in circumstances, may require pecuniary aid.

A. For Assuring an Annu. of £20 to a Nominee of the under-mentioned ages, the Annu. to commence at the age of 15 years, and to continue till the age of 21.			B. For Assuring an Annu. of £20 to a Nominee of the under-mentioned ages, the Annu. to commence at the age of 19 years, and to continue till the age of 24.		
Age of Child or Nominee.	Number of Ann. Payments to be made.	Quarterly Prem.	Age of Child or Nominee.	Number of Ann. Payments to be made.	Quarterly Prem.
3 Mths.	15	£ s. d. 1 6 5	1 Year	18	£ s. d. 0 18 1
6 "	15	1 6 6	2 "	17	0 19 8
9 "	15	1 6 8	3 "	16	1 1 9
1 Year.	14	1 9 7	4 "	15	1 3 9
2 "	13	1 13 0	5 "	14	1 6 0
3 "	12	1 17 0	6 "	13	1 8 8
4 "	11	2 1 4	7 "	12	1 11 8
5 "	10	2 6 7	8 "	11	1 15 2
6 "	9	2 12 10	9 "	10	1 19 5
7 "	8	3 0 8	10 "	9	2 4 8
8 "	7	3 10 7	11 "	8	2 11 1
...	...	...	12 "	7	2 19 6
...	...	...	13 "	6	3 10 8

These advantages were to be reserved for such pol.-holders as had been insured 3 years. There were no directors' or officers' names on the prosp., but "every information will be given on application to Charles Fredk. Chubb, Esq., Solr., No. 13, Gray's Inn Square." The Co. never matured under its orig. name.

EDUCATIONAL LIFE.—This Co. was projected in 1850 or 1851 by Dr. John Hastings, of Albemarle Street; but its connexion afterwards merged into the *Prince of Wales*, founded in 1851.

EDWARDS, JOHN, was appointed Act. of *Equitable So.* in 1767, on death of Mr. Dodson. He remained in that position until 1774.

EDWARDS, WILLIAM, of Ledbury, pub. in 1852, *Hints on Fire Ins.* Mr. Edwards was for some years a successful ins. agent.

EFFECT OF AGENT'S KNOWLEDGE.—Under AGENTS, and also under DESCRIPTION OF PROPERTY INSURED, we have had occasion to consider, more or less directly, the effect of the agent becoming acquainted with facts which ought to be communicated to the Co., but have not been. The subject will be considered more in detail under REPRESENTATIONS.

EFFECTS.—Property, goods, and chattels—not however including land or houses. [PERSONAL EFFECTS.]

EFFECTS, INS. OF.—See MARINERS' EFFECTS, INS. OF.

EFFECTUAL CO. OF INSURERS.—In 1712—when the mania for ins. projects was strong—a scheme under this title was projected, of which a writer of the period has left the following account:

There has been the oddest bite put upon the town that ever was heard of. We having of late had several new subs. set on foot for raising great sums of money for erecting offices of ins., etc. . . . And at length some gentlemen, to convince the world how easy it was for projectors to impose upon mankind, set up a pretended office in Exchange Alley, for receiving subscriptions for raising £1,000,000 of money to estab. an "Effectual Co. of Insurers," as they called it: on which, the day being come to subs., the people flocked in and paid down 5s. for every £1000 they subs., pursuant to the Co.'s proposals; but after some hundreds had so subscribed, that the thing might be fully known, the gentlemen were at the expense to advertise that the people might have their money again without any deductions; and to let them know that the persons who had taken in their money contented themselves with a fictitious name set by an unknown hand to the receipts delivered out for the money so paid in, that the said name was composed only of the first letters of the six persons' names concerned in the said scheme.

This trick is said to have considerably damped the ardour for such projects for a time.

EFFICIENCY OF FIRE BRIGADES.—The importance of efficient fire brigades in limiting the destruction of property by fire has received much attention of late years. The entire subject will be discussed under FIRE BRIGADES.

EFFINGHAM, THOMAS, a labourer, died in Cornwall in 1757, at the reputed age of 144. He had in early life been a soldier.

EFFLUVIA (from the Latin *effluo*, to flow out).—Exhalations, vapours, etc. They are distinguished as follows: *contagious*, as the rubeulous; *marsh*, as miasmata; and those arising from *animals*, or *vegetables*, as odours.—*Hoblyn*.

EFFUSION.—The escape of a fluid out of its natural vessel, or viscus, into another part. Also the secretion of fluids from the vessels, as of the lymph or serum, on different surfaces.

EGYPTIAN OPHTHALMIA.—Purulent ophthalmia: so called from its ravages among the troops engaged in the English and French expeditions to Egypt.

EI INCUMBIT PROBATIO, QUI DICIT, NON QUI NEGAT: CUM PER RERUM NATURAM FACTUM NEGANTIS PROBATIO NULLA SIT.—A legal maxim: *The proof lies upon him who affirms, not upon him who denies: since by the nature of things, he who denies a fact cannot produce any proof.*

EIFFE, HENRI C., was Act. and Sec. of *Lond. Mut. Loan and Guar.* from its estab. down to 1849. From 1852 to 1854 he was Gen. Man. of *Hope Mut.*

EIK TO A REVERSION.—A Scotch law term, signifying an add. loan to a mortgagor, who is the reversioner of the mortgaged estate. *Eik to a Testament*, an add. to an inventory made up by an executor.

EJECTION (from the Latin *ejectio*, a casting forth).—The ordinary proceeding for recovering possession of premises where the right of possession has accrued within 20 years, is by an action of *ejection*, which is a mixed action, and seeks not only recovery of possession, but also damages in the nature of mesne or intermediate profits whilst the party has wrongfully withheld possession, so as to prevent the necessity for a subsequent distinct action to recover such mesne profits. The celebrated but purely fictitious *John Doe* and *Richard Roe* ceased to be parties to such a suit by operation of the Common Law Procedure Act, 1852.

EJECTUM.—Jet, Jetsom, Wreck, etc.

EXJUSDEM GENERIS.—Of the same kind or nature.

EKPHRONIA [EKPHRONIA] (from the Greek, *out of one's mind*).—Insanity, craziness; a term comprising the species melancholy and madness.

ELBE.—A North German river of considerable mercantile importance, the city of Hamburg being situated on its north bank. It is navigable for a distance of 470 miles. Until quite recent years this river formed the northern boundary of travel or residence under Brit. life pol., without special licence and extra rates.

ELDER, JOHN HILL, Resident Sec. of Liverpool Branch of *Edinburgh L.* He had previously represented the same Co. and the *Manchester F.* in Birmingham since 1872.

He was at an earlier period Sup. of Agents of *Edinburgh L.*, and then its Sec. in Glasgow, having been trained to the bus. in the Liverpool branch of the *Alliance F. and L.* He has received his present appointment recently (1874).

ELDERTON, FREDERICK F., Sec. of Lond. branch of *City of Glasgow Life* since 1853. He had previously held a position in the *Phoenix Fire*, which office he entered in 1844 as a junior.

ELDERTON, H. M., was Sec. of *Protestant* in 1853.

ELECTION.—In Law this term denotes that a man is left to his own free choice to take or do one thing or another; as where a man has two forms of action by which he may recover his right, it is within his *Election* to choose that according to which he will proceed. Or where, as in some cases, he has an election between several parties, against any of whom he may prosecute his suit.

ELECTRIC TELEGRAPH (FIRES).—In the first vol. of the *Assu. Mag.* (part 2, p. 35*, pub. 1850) Mr. Samuel Brown ventured to suggest whether the electric telegraph might not be made the means of communicating information as to fires outside the metropolitan district. The importance of the telegraph as an auxiliary to fire brigades generally had not then been contemplated. [FIRE BRIGADES.] [FIRE PROTECTION.] For the benefits Marine Ins. has conferred in the matter of submarine telegraphic cables, see *SUBMARINE TELEGRAPHIC CABLES, INS. OF.*

ELECTRO-BIOLOGY (from the Greek, signifying *an account of life*).—A comparatively recent term for Mesmerism or Animal Magnetism, suggestive of the connexion of electricity with the phenomena of life.

ELEGIT (from the Latin, *he has chosen*).—A judicial writ of execution, under which creditors (who elect this mode of proceeding) take possession of a debtor's property, real or personal, and hold the same until payment of the debt. During the period the creditor so holds he is called "Tenant by Elegit," whose interest is denominated an estate of freehold, defeasible upon a condition subsequent. His interest, however, is really a chattel, and passes to his executor.

ELEPHANTIASIS.—Elephant disease; a blood disease named from the likeness of the diseased skin to that of the elephant; and particularly from its vastness and terrible nature. True elephantiasis (for there are several varieties) is termed *tubercular* when the morbid deposition occurs in the surface membranes of the body, particularly of the skin; and *anæsthetic*, when the deposition occurs in and around the nervous centres and nerves.

ELEVATION.—In general signification it is the height of a building above the ground level. Technically it is a geometrical representation of a building measured vertically in respect of the horizon.

ELEVATION OF SITE.—The importance of elevation of site in regard to the health of the pop.—that is, elevation above the sea-line,—has received some remarkable illustrations in recent years. We propose to take a rapid glance at the subject.

In 1852 Dr. Farr read before the Statistical So. a paper, *Influence of Elevation on the Fatality of Cholera*. The author says:

Elevation of the land involves several conditions which have an important effect upon life and health. As we ascend the pressure of the atmosphere diminishes, the temperature decreases, the fall of water increases, the vegetation varies, and successive families of plants and animals appear in different zones of elevation. The waters roll along the surface of the rocks, or filter through them and the porous strata of the earth to burst out below—the sources of rivers, or of tributaries which carry disintegrated rocks, with the remains and excretions of vegetables, animals, or men, at every stage of decomposition. The deposits in stagnant places, and at the estuaries, show the kind of mixed matter which the laden rivers carry down and deposit on the low margins of the sea at the tidal confluences of the fresh and salt waters. . . .

The people living on land of a certain elevation above the plains are not only safe from the attacks of cholera, remittent fever, yellow fever and plague, but they are in a remarkable degree exempt from other maladies. Their functions are healthy and their faculties are energetically developed. They present the finest types of the human race. This is evident not only in Cashmere, Georgia, and Circassia, but in all the hill-tribes of India. The miserable natives of the Sunderbunds are below them in all the characteristic attributes of man. The Arabs and Abyssinians too, on the elevated lands of the desert, and on the sides of the mountains from which the Nile descends, present a striking superiority over the people of Lower Egypt; their fiery life, love of liberty, and warlike genius, place them immeasurably above the Fellahs. And it is not the air of the sea that deteriorates the race, for the sea, as it restores health, also sustains a seafaring people; and islanders generally, whether in the Pacific, the Mediterranean, or the Atlantic, are above the standard type of the people on low rivers and on the low coasts of continents. . . . The ancients were well aware of the salubrity of islands and of the high lands.

Passing from the general to the specific, we have the following:

The extensive obs. which have been collected under the Regis. Act, and the calculations in the Rep., show indisputably that the elevation of the soil exercises as decided an influence on the English race as it does on the native races of other climates and soils. The great striking practical effect which the inquiry into the mort. of the cholera in Eng. has elicited is *the influence of slight degrees of elevation*. In the vast pop. of Lond. it is rendered evident. In that part of the parish of Lambeth near the level of the Thames, the cholera, in 10,000 inhabitants, destroyed 163; at Kensington, 8 feet high, 90; at Brixton, 56 feet high, 55; and finally, in Norwood, the highest sub-district of the parish, where the inhabitants are at least 128 feet above the river, only 5 in 10,000, and this was not accidental. Elevation within these moderate limits operated with the regularity of a general law; and the influence of elevation has been felt all over the kingdom. Everywhere the low cities have suffered.

Some further details have been given under *CHOLERA, ASIATIC, 1852*.

Dr. Littlejohn, M.D., in his *Rep. on the Sanitary Condition of the City of Edinburgh*, etc.,

pub. 1865, furnishes some corroborative details. He says, "An interesting question connected with the distribution of the pop. is the heights above the sea-level at which the inhabitants are found grouped in the largest numbers, and the effect of elevation on disease, whether sporadic or epidemic." In view of elucidating this subject, he arranged the entire pop. of the city (as in 1861), numbering 168,121 persons, in successive elevations from 50 up to 400 feet, according to their residence. The entire mort. of the city for that year, as also that from fever and diphtheria, was arranged in parallel columns; as also that from two special epidemics of fever and cholera; and the death-rate per 1000 is also stated. Here is the table:

Height in feet above the sea.	Pop. 1861.	Total Mort. 1863.	Special Mort. 1863.		Epidemics.		Death-rate p. 1000.			Rate of Cases p. 1000.	
			Fever.	Diphtheria.	Fever 1847-8.	Cholera 1848.	Total Mort. 1863.	Fever 1863.	Diphtheria 1863.	Fever Epidemic 1847-8.	Cholera Epidemic 1848.
400-450	854	15	1	...	...	...	17'54	1'17	...	...	...
300-350	3168	63	2	1	31	12	19'88	'63	'31	9'78	3'78
250-300	30,740	915	24	19	942	111	29'73	'78	'61	30'64	3'61
200-250	70,898	1853	70	46	3538	417	26'12	'98	'64	49'9	5'88
150-200	19,432	573	25	25	1343	86	29'48	1'28	1'28	69'11	4'42
100-150	26,304	560	24	20	218	49	21'28	'91	'76	8'28	1'86
50-100	15,178	297	17	23	83	17	19'56	1'12	1'51	5'46	1'12
1-50	1547	40	...	...	6	2	25'85	...	...	3'87	1'29
Total...	168,121	4316	163	134	6161	694	25'66	'96	'74	37'24	4'12

The compiler says:

This general T. was constructed at considerable expense of time and trouble. Each district was taken separately, and a similar plan was followed in the enumeration and calculation. From the separate T. thus prepared, the one given above was arranged. *From the large accessions of a poor pop. prone to disease at an elevation of from 200 to 300 feet, comprising among others that occupying the Grassmarket, Cowgate, etc., the influence of height and exposure on the production of disease is not manifest.* This is especially seen to be the case with cholera, which in the metropolis and elsewhere clearly showed the marked influence which elevation had on the number of cases and the rate of mort. On taking a single district, however, with marked graduation in its elevation, and a considerable pop., more trustworthy results are obtained.

We do not propose to reproduce this add. T.; although its results are far more striking than in the previous one. The author says:

It will be observed that as we proceed from a lower to a higher elevation, there is a regular diminution in the general death-rate during 1863, and also in the rate of cases p. 1000 of the pop. affected in the great epidemics of fever and cholera, if the small proportion of the pop. living at from 150 to 200 feet above the level of the sea be abstracted. The character and respectability of the pop. vary, however, with the height at which they live, and there is a marked difference in this respect between that portion of the Cowgate included in the district of St. Giles, lying at a comparatively low level, and the higher localities of the High Street, Castle Hill, and the Castle, where undoubtedly the inhabitants live in greater comfort, and enjoy life under better hygienic conditions.

Some further considerations regarding elevation will arise under LOCALITY, INFLUENCE OF.

ELEVATORS.—Elaborate structures, mostly built of timber, and fitted with machinery, employed in discharging grain from ships and barges, cleansing and storing it, with a view to re-shipment. Many of these erections exist at the great grain depôts in the North-Western portions of the U.S.; and they were at one time regarded as very bad risks.

ELIXIR.—An Arabic term, denoting an essence, or pure mass without any dregs, and formerly applied to compound tinctures.

ELIXIR VITÆ, OR WATER OF LIFE.—The alchemists having failed in their original design of transmuting the inferior metals into gold, turned their attention to the discovery of the next greatest—if not the greatest—object of ambition, viz. the finding means to avoid death, or failing this, so to prolong existence as to reckon it by centuries instead of units. There can be no doubt that the experiments of the alchemists led to many important discoveries in chemistry, and hence perhaps arose the belief that still greater discoveries were in store, in the direction of which we are now speaking.

Many writers have grown very enthusiastic upon the subject. Vincent de Beauvais argues indeed that all the antediluvians must have possessed a knowledge of alchemy; and particularly cites Noah as having been acquainted with the *elixir vitæ*, or he could not have lived to so prodigious an age, and have begotten children when upwards of 500 years old!

In the 12th century Artepheus wrote two famous treatises; one upon the philosopher's stone, and the other on the art of prolonging human life. In the latter he vaunts his great qualifications for instructing mankind on such a matter, as he was at that time in the *thousand and twenty-fifth year* of his age! He had many disciples, who believed in his

extreme age, and who attempted to prove that he was Apollonius of Tyana, who lived soon after the advent of Jesus Christ!

About the same period lived Alain de Lisle of Flanders, who, from his great learning, was called the "universal doctor." He is said to have discovered the *dixir*, and to have applied it successfully in his own case, for being on the point of death when about 50, he was enabled to add 60 more years to his life. There appear grounds for believing that he lived to the age of 110.

In the year 1244, or thereabouts, it was very currently believed that Albertus Magnus and his pupil Thomas Aquinas had seized some portion of the secret of life, and thus had found means to animate a brazen statue!

A little later, and M. Martin Zeigler is reported to have patented a method of producing a vital fluid, by combining nitrogen and carbon in a porous cell containing ammonia, immersed in a vessel filled with molasses. The current was to flow through silk threads attached to the vessel!

In a curious work by M. Longeville Harcourt, entitled, *The Hist. of the Persons who have lived several Centuries, and then grown young again*, there is a receipt, said to have been given by Arnold de Villeneuve (born 1245), although the same does not appear in his collected works, by means of which any one might prolong his life for a few hundred years or so! In the first place, say the authorities, "the person intending so to prolong his life must rub himself well two or three times a week with the juice or marrow of cassia. Every night upon going to bed he must put upon his heart a plaster composed of a certain quantity of oriental saffron, red rose leaves, sandal wood, aloes, and amber liquefied in oil of roses and the best white wax. In the morning he must take it off, and inclose it carefully in a leaden box till the next night, when it must be again applied. If he be of a sanguine temperament, he shall take 16 chickens; if phlegmatic 25; and if melancholy 30, which he shall put into a yard where the air and water are pure. Upon these he is to feed, eating one a day; but previously the chickens are to be fattened by a peculiar method, which will impregnate their flesh with the qualities that are to produce longevity in the eater. Being deprived of all other nourishment till they are almost dying of hunger, they are to be fed upon broth made from serpents and vinegar, which broth is to be thickened with wheat and bran." It is almost sickening to pursue the record—yet kings, queens, and emperors listened with awe to the jargon of these professors! Various ceremonies were to be performed in the cooking of this mess, and the chickens were to be fed upon it for two months. They are then fit for table, and are to be washed down with moderate quantities of good white wine or claret. This regimen is to be followed regularly every seven years, and any one might live to be as old as Methuselah!

In 1555 Dr. Dee, a very learned astrologer, whom Queen Elizabeth condescended to visit at Mortlake, professed to have discovered the elixir, and thousands flocked to see the man who, according to his own account, would never die.

The Rosicrucians who flourished in the 15th century pretended, amongst other virtues, that they were not subject to hunger or thirst, nor disease, nor old age, nor to any other inconvenience of nature. It was alleged that they collected large quantities of morning dew, and boiled it, in order to extract a very valuable ingredient in the composition of the philosopher's stone and the water of life. One of the greatest of the sect was John Heydon, who flourished in the 17th century. He wrote a book, *A new method of Rosicrucian Physic, by John Heydon, the Servant of God, and the Secretary of Nature*.

Gabriel de Castaigne, a monk of the order of St. Francis, attracted so much notice in the reign of Louis XIII. that this monarch secured him in his household, and made him his Grand Almoner. He pretended to find the elixir of life, and Louis expected by his means to have enjoyed the crown for a century!

A little later and the Count de St. Germain played a distinguished part in the Court of Louis XV. He pretended to have discovered the elixir of life, by means of which he could make any one live for centuries; and allowed it to be believed that his own age was upwards of *two thousand years*! He made considerable sums afterwards by selling his elixir in Germany. To those whom he was pleased to call his friends, he said his mode of living and plan of diet were far superior to any elixir, and that anybody might attain a patriarchal age by refraining from drinking at meals, and very sparingly at any other time. He had constant applications from rich old women for an elixir to make them young again.

One of the last persons of any note who has pretended to the secret of the philosopher's stone and the water of life was Cagliostro, whose real name was Joseph Balsamo, born at Palermo in 1743, of humble parentage. During his brief season of prosperity he was one of the most conspicuous characters in Europe. For more ample details see Dr. Charles Mackay's *Memoirs of Extraordinary Popular Delusions*.

Early in the present century a prescription was prepared by Dr. Jernitz, called the "Elixir of Longevity," which was very celebrated in Sweden as a means of improving health and prolonging life. Some details of it are contained in *An Account of Persons remarkable for their Health and Longevity*. By a Physician. 2nd ed. 1829. The author says:—"In proof of the efficacy of this elixir, it is said Dr. Jernitz himself attained the age of 104, and his son to 100; and the whole of his family by the constant use of it lived

to a great age. A great number of persons in Sweden are reported to have received uncommon benefit from it."

In the U.K. many thousands of persons have died at the age of a century or upwards without the aid of any other elixir than that of sober industry. [LONGEVITY.]

ELLIOT, E. B., constructed about 1857 a Mort. T. based on the census returns for Massachusetts, 1850. See AMERICAN MORT. TABLES.

ELLIS, CHARLES, Barrister-at-Law, pub. 1832, *The Law of Fire and Life Ins. and Annuities, with Practical Observations*. 2nd ed. 1846, "revised and enlarged." The work was re-pub. in the "American Law Library."

ELLIS, CHARLES, was Underwriter for *United Ports* during its brief career. He had previously been supervisor of the underwriting department of *Lond. and Caledonian*. He was orig. a well-known underwriter at Lloyds.

ELLIS, WILLIAM, Underwriter of *Indemnity Marine* since 1828, and was previously assistant underwriter from the formation of the Co. in 1824. Thus for half a century Mr. Ellis has been associated with the fortunes of this most successful Co., and it is generally understood that no small share of its success has depended—as indeed it must have depended—upon the judgment of its underwriter, now grown grey in its service. Mr. Ellis was the author of the art. "Marine Ins." in the 1st ed. of McCulloch's *Commercial Dict.*

ELOIGNMENT.—Removal; sending to a distant place.

ELSMERE, E., Jun., Man. Director of *Shropshire and N. Wales Ins. Co.* since 1845.

ELSNER, Dr. A. F., Berlin, for many years Ed. of *Deutsche Versicherungs Zeitung; Organ für das gesammte versicherungswesen* [German ins. newspaper], pub. bi-weekly. It deals with subjects connected with ins. in all its branches, and reports the judicial proceedings arising out of the same. The paper exercises influence in the North of Europe; and has or had a considerable circulation in the U.S. Dr. Elsner is also the author of the following works on ins. topics:

1864-5.—*Archiv für das Versicherungswesen*, 2 vols. 8vo., Berlin, which contains contributions relative to the laws and regulations of ins. cos., an epitome of English legis. respecting bus. corporations in general, with an extended and particular statement of the different regulations imposed upon ins. cos. in the different German States.

1867-8.—*Repertorischer Assecuranz-Almanach: Handbuch für den assecuranz- und handelsstand und für juristen*. 2 vols. 18mo. Berlin. This is properly a treatise on the jurisprudence of insurance, life, marine, and fire, and contains likewise a free translation of MM. Tardieu and Taylor's *Studies of forensic medicine in its application to life ins.*—8th series, pub. 1873. "The last part of the *Handbuch* is devoted to the causes of fires. This subject is illustrated by numerous instances, and is treated by a series of articles on combustibles and explosives, their manufacture and use in manufacture. There is no need to emphasize the utility of this branch of Dr. Elsner's labours."—*Ins. Record*.

ELY, CITY OF, CAMBRIDGESHIRE.—This place affords a remarkable example of the beneficial effects of enlightened sanitary treatment. In support we may quote the following eloquent passage from the Quarterly Rep. of our Reg.-Gen., Sept. 1858:

Ely stands, with its lofty cathedral, on one of the old Fen Islands. It is a small city of 6176 inhabitants (in 1851), and is in the neighbourhood of the low lands, where the great systems of modern embankments and draining were commenced by Vermuyden, one of Cromwell's colonels of horse. The Bishop of Ely in ancient times went in his boat to Cambridge. And the country around, like all our old marshes, is still imperfectly drained. The atmosphere has therefore no natural advantages. The Public Health Act was introduced in 1851. The Ely Board of Health was founded. They set on foot two great works—one for supplying the town with water; the other for carrying off that water through every house clear out of the town. The public works were completed at the end of 1854; and the houses were gradually connected with the public sewers, leaving, however, at the end of 1857, 200 in 1200 houses out of connexion. Mr. Marshall, the Supt. Registrar of the district, in an able paper shows the results of this great experiment. In the 7 years (1843-9) before the Public Health Act was in operation the mort. was at the rate of 26 deaths ann. to every 1000 living; in the 7 subsequent years (1851-7), when the sanitary measures were only partially carried out, the mort. fell down to the rate of 19 deaths ann. to every 1000 living. The mort. in the two last years (1856-7) was at the rate of 17 in 1000. In the same period the surrounding rural parishes underwent some improvement; but the improvement of the city has advanced so much more rapidly that its mort. was in the last two years 4 in 1000 less than the mort. of the surrounding country. The young people under the age of 35 have enjoyed remarkable immunities from disease, and the benefit will be transmitted to succeeding generations. [PUBLIC HEALTH.] [TOWN LIFE.]

ELY, JOHN, was promoter, and Man. of *British Standard L. and Sickness* during its brief career.

EMACIATION (from the Latin *emacio*, to make lean).—General extenuation of the body, with debility [MARASMUS.]

EMBALMING.—A process adopted by the ancient Egyptians chiefly for the preservation of dead bodies from putrefaction. The term is derived from the use of balsamic substances in the operation; in add. to these, saline substances and tanning materials seem also to have been used.—*Brande*.

In the *Lancet*, 9 May, 1868, is a letter from Dr. Bain, M.D., regarding a new process of embalming by Dr. Marini, of Florence:

Having handled some of his preparations in Florence last autumn, I am able to say that he is the inventor of a mode of turning the human body, or any part of it, into stone, in any attitude that may

be desired. I inclose the photograph of a Senator of the Italian Parl. taken 4 months after his decease, in which he is represented seated in his chair, with his clothes on, just as when alive, his eyes retaining in an astonishing degree the vivacity of life. I also inclose the photo. of a table, the slab of which is formed of pieces of the human body—brain, muscles, etc.—all turned into stone, and which, when struck by me, sounded as a marble table. I also inspected a lady's foot, likewise petrified, and which had every appearance of marble, until, upon close inspection, the texture of the skin was apparent. Dr. Marini showed me, too, some specimens of the human body which were in a moist and perfect condition, preserved for years. . . .

The idea of converting our progenitors into "household gods" is certainly new and startling; but the process, if capable of wide application, may be productive, not only of sanitary, but of scientific, and even judicial advantages.

In the U.S. the process of embalming has been very prevalent in recent years.

EMBARGO.—From the Spanish *embargar*, to detain; applied to the restraining ships from sailing. This power is vested in the Crown, but is rarely exercised, except in extreme cases; and sometimes as a prelude to war. The most memorable instances of embargo in Gt. Brit. are those of 1766, preventing all export of corn from the kingdom; and of 1801, detaining all the Russian, Danish, and Swedish ships in the several ports of the kingdom, owing to the armed neutrality.

Embargoes are among the most common cases falling within the words "arrests, restraints, and detentions of princes, powers," etc., which is one of the risks insured against under a marine pol. But while this is so, the law of the subject is by no means well defined. For instance, it has never, we believe, been determined whether an embargo may be laid in time of peace; or whether, in time of war, a prince may make use of the vessels he finds in his ports to aid him in carrying on the war. We can but superficially glance at some of the leading points wherein the practice is settled.

The subjects of a foreign State cannot recover against an English underwriter for a loss occasioned by an embargo or other act of their own Gov. Hence it follows that if the foreign consignor cannot recover in consequence of the loss being occasioned by the acts of his own Gov.: so the English consignee cannot apply the pol. to his own benefit in respect of advances he has made to the consignor.

The rule that a notification of a blockade is notice to all the subjects of a nation to which the notification has been made, is open to some relaxation for the benefit of commerce, and in cases of ins., knowledge of the blockade must be proved.

The breach of an embargo is an act of barratry of the master; but a vessel may sail for a blockaded port after a notification of the blockade for the purpose of inquiring whether the blockade continue.

If a ship, though neutral, be insured on a voyage prohibited by an embargo, such ins. is void.—*Park*.

An embargo laid by a foreign Gov. upon the ships or goods of any other than its own subjects, entitles the insured at once to give notice of abandonment; and if the embargo continues down to the time of action brought, to recover as for a total loss. Thus where a neutral ship and stores, ins. "at and from" an enemy's port, were there detained by an embargo laid on by the enemy in the port of lading, and continued down to the time of action brought, the insured recovered as for a total loss, under a count for loss by "arrest and restraint of princes."—*Rotch v. Edie*, 1795.

It was formerly considered that a foreigner, who had effected ins. in this country, was debarred from claiming under the pol. in respect of a loss resulting from the arrest by his own Gov. of the property insured: because, in the eye of the law, he was regarded as identified with his ruler in the commission of the act. But this principle must now be regarded as restricted to cases in which the arrest is committed with a hostile intention to this country. The leading case on this point is *Aubert v. Gray*, decided in the Exchequer Chamber, 1862—overruling the case of *Conway v. Gray*, 1809.

Wages and provisions of the crew, during a detention by embargo, are not chargeable, by our law, upon the underwriter on ship, as they are of those ordinary and usual expenses of the navigation which fall exclusively upon the shipowner, and for which he is remunerated out of the freight. The principle is that the shipowner, in consideration of the freight, owes the services of the crew to the freighter during the whole voyage, and consequently also during the time of detention, which is considered to make part thereof.—*Benecke, Pothier, Embrigon, Arnould*.

Sometimes vessels are seized, detained, and even confiscated by the authorities under whose jurisdiction they are lying, in consequence of some violation of the law having been committed by persons connected with them. This, however, is not a loss by arrest, restraint, or detention of princes, though it may amount to a barratry of the master or mariners.

This art. should be read in connexion with ABANDONMENT; ARREST; CAPTURE; DETENTION; PRIZES.

EMBASSAGE, or **EMBASSY**.—The message or commission given by a Sovereign or State to a minister, called an ambassador, empowered to treat or communicate with another Sovereign or State. Also the estab. of an ambassador.

EMBEZZLEMENT.—The appropriation to his own use by a servant or clerk of money or chattels received by him for and on account of his master or employer. Embezzlement differs from larceny in this, that in the former the property misappropriated is not at the

time in the actual or legal possession of the owner, while in the latter it is. The distinctions between larceny and embezzlement are often extremely nice and subtle; and it is sometimes difficult to say under which the offence ranges. Unless the offender is a clerk or servant, whose bus. it is to receive money for his master, he is not guilty of embezzlement. Embezzlement by a clerk or servant, or person employed as such, of any chattel, money, or valuable security, is a felony punishable by penal servitude for a term not exceeding 14, nor less than 3 years; or by imprisonment not exceeding 2 years. [FIDELITY INS.]

The Ins. Ordin. of *Rotterdam*, 1721, declares, "If any of the ship's crew do conceal or embezzle any goods in case of shipwreck, they shall be punished with death."

It is, we believe, the custom in all countries that if goods on shipboard be embezzled by the master or crew, the owners, and not the underwriters, are liable.

The 7 Geo. II. c. 15 (1734) contained enactments regulating the limit of loss of the owners in such cases. This Act was repealed by 17 & 18 Vict. c. 120 (1854).

EMBLEMMENTS.—The growing crops of those vegetable productions of the soil which are ann. produced by the labour of the cultivator. They are deemed personal property, and pass as such to the executor or administrator of the occupier, whether he were the owner in fee, or for life, or for years—if he die before he has actually cut, reaped, or gathered the same; and this, although being affixed to the soil, they might for some purposes be considered, whilst growing, as part of the realty. If the tenant for life, or *pur autre vie*, die, his executor or administrator is entitled to emblements, for the estate was determined by the act of God; and it is a maxim in the law that *actus Dei nemini facit injuriam* [the act of God is so treated by the law as to affect no one injuriously].—*Wharton's Law Lex.*

EMBOLISM.—This is a cause of death recently introduced into the returns of the Reg.-Gen.; but long previously known as a disease. Erichsen defines it as follows:

An embolism is a solid body which has entered the current of the circulation. It may consist of detached fragments of fibrine, calcareous, or atheromatous matter, foreign bodies, or entozoa. The effects which it produces will depend upon its size, qualities, and upon the part of the circulation into which it may have entered. . . . It is to embolism that modern pathologists ascribe the formation of most, if not all, the metastatic abscesses found in the lungs of patients who have died pyæmic; and they consider that the embolism is derived rather from the destruction of pre-existing thrombi than from the entrance of true pus into the circulation.

Dr. Farr, in the 32nd Rep. of Reg.-Gen. (abstracts of 1869), says:

The deaths of 27 males and 66 females were referred to the newly-discovered cause of death, embolism; 46 of the women and 13 of the men were of the ages 20-55. So that the excess in women is probably connected with the period of childbearing.

EMBONPOINT.—The French term for "in good point or plight"; in excess it constitutes corpulence and obesity.

EMBOUCHURE.—The mouth of a river.

EMBRYO (from the Greek, *to bud forth*).—The *ovum* in utero, before the 4th month, after which it is called *fœtus*.

EMBRYONIC MORTALITY.—Some years ago Dr. Granville collected statistics of the history of 400 mothers, married women, who applied to the Westminster General Dispensary, and found that though 272 of them had had only live children, the other 128 had in the previous ten years borne 556 live children, and 305 dead embryos, the latter most frequently in their earlier months, just as the mort. in the first year of breathing life increases rapidly as we proceed backwards from the 12th to the third, second, and first month. [FECUNDITY.] [INFANT LIFE.]

EMERGENT.—That which has just come into being. Hence "Emergent pol."—those that are in the first year of their currency. "Emergent risk"—the first year of risk. "Emergent year"—the epoch or date from which any computation takes its commencement.

EMERIGON, MONS. M.^e B., French Advocat, pub. at Marseilles in 1783, *Traité des Assurances et des Contrats à la Grosse*. Of all the French writers upon commercial law, Emerigon holds the first rank. His writings and his reputation are not confined to France alone, for the jurists of Gt. Brit. and the U.S. have equally derived assistance from his labours, and have borne their united testimony to his great ability, learning, and diligence. Lord Ellenborough says: "Who has equalled Emerigon as a theoretical and practical writer on the Law of Ins.? He has exhausted every topic, so far as materials were within his reach; and upon all new questions his work, for illustrations, authorities, and usages, is still unrivalled." Chancellor Kent has spoken with equal warmth concerning him; Lord Tenterden also; and Park.—*Marvin*.

In 1811 an ed. of his work was pub. in Baltimore by John E. Hall, with additions as follows: *An Essay on Maritime Loans, from the French of Emerigon, with Notes; to which is added an Appendix containing the titles De Exercitoria Actione, De Lege Rhodia, De Factu, and De Nautico Fœnore, translated from the Digests and Code of Justinian; and the title Des Contrats à la Grosse Aventure ou à Retour de Voyage, from the Marine Ordin. of Louis XIV.*

In 1850 an excellent English trans. of Emerigon was pub. by Samuel Meredith, Barrister-at-Law, under the title, *A Treatise on Insurances*.

EMERSON, DR., of Philadelphia, U.S.—In 1827 he pub. an article in the first number of the American Journ. of the Medical Sciences, entitled: *Medical Statistics: being a series of T. showing the Mort. in Philadelphia, and its immediate causes, during a period of twenty years.* It contains a very full summary of the results recorded in the Bills of Mort. of that city during that period. [PHILADELPHIA.]

EMERSON, J., was Sec. of Lond., Edin., and Dublin Ins. Co. from 1843 to 1845.

EMERSON, W., pub. in 1776: *Miscellanies, or a Miscellaneous Treatise, containing several Mathematical Subjects.* Among these subjects are Essays on Laws of Chance; Annuities; Societies for Old Age; Interest. De Morgan says: "Emerson was a writer of many works which had considerable celebrity; but he was as much overrated as Thomas Simpson was underrated." This work will be spoken of under some other heads.

EMIGRANT AND PASSENGERS' LIFE ASSU. CO.—This Co. was projected in 1851 by Mr. John Pym, mine proprietor. It did not go beyond prov. regis.

EMIGRANTS, MORT. AMONGST.—It was prob. fortunate for those ins. offices which made the insuring of emigrants at ordin. rates of prem. a prominent feature of their bus., that they did not, at least in the earlier period of their operations, receive a very extended patronage. We propose to note a few recorded facts on the subject.

An official rep. for 1852 by the N.Y. Emigration Commissioners showed that out of 6789 emigrants who had embarked during the closing period of that year, but 6257 arrived—532 having died on the passage! Another series of obs. in the same year showed that out of 10,324 passengers who sailed (most of them from Liverpool) to N.Y. in the same year, 811 died on the passage. Beyond this the rep. of the American Commissioners showed that out of every 30,000 emigrants who actually arrived, 837 were taken to the marine hospital on arrival, or within a few days afterwards.

It was found by careful obs. in 1854 that while the then ordin. rate of mort. in Lond. was 1 in 133, the rate on board the emigrant ships leaving our shores was 1 in 12!

These fatal facts drew public attention, and in that form produced their own remedy. The Brit. Emigration Commissioners became suddenly alive to the fact that it was their duty to see to the health and comfort of those whom they consigned to distant lands. Vessels were inspected; sanitary arrangements were adopted; efficient medical officers were appointed to every ship. The results were very speedily apparent. The return of the Emigration Commissioners for 1857 shows that of 16,467 emigrants who proceeded to Boston, U.S., in the first nine months of that year, only 22, or '13 p.c., died on the voyage; while among 4939 emigrants who sailed for Philadelphia, the deaths were only 8, or '16 p.c.

Regarding the mort. among the early Australian emigrants we have no statistics at command; but from the rep. last quoted we find that the mort. in ships which sailed to Victoria in 1857, with 11,758 emigrants, amounted to only 62, or '33 p.c.; and that the number of deaths in ships containing 22,301 souls was 200, or '89 p.c. Of these deaths 55 were of adults, being '31 p.c. of the number of adults embarked, 88 were of children between the ages of 1 and 12, being 2'05 p.c. of the whole number of children between those ages, and 57 were of children under 1 year.

Then again we have the "dark" side of the picture. The mort. among Calcutta coolies in 1856-7 had greatly increased. In that season 12 ships embarked 4094 souls at Calcutta, and the deaths on the voyage, besides those which occurred after landing in the colonies, were no less than 17'26 p.c. on the number embarked. Among other things, as the causes of this loss of life, was mentioned the prevalence of choleraic disease, the continuation of the Bengalee, the use of copper utensils of different kinds, the behaviour of the people while dropping down the Hooghly, and, in particular, their drinking the water of that river.

It was the habit to insure these poor coolies under marine pol. [SLAVES, INS. OF], and hence there was prob. less care taken of their lives.

Regarding emigrants from Eng., the rate of mort. continues small; and the change of air and scene should be beneficial rather than otherwise. Against these there are the hardships incident to early settlers, which would seem to render the risks undesirable, even if they could be obtained.

Another aspect of the subject has just (1874) been brought forward. A rep. issued by the Corp. on the sanitary condition of the port of Lond. shows that vessels frequently arrive in the Thames and haul into dock with emigrants from various parts of Europe, who are embarked at Hamburg, Rotterdam, Stettin, and other Baltic ports, and sent to Lond. for transhipment to Australia, New Zealand, and other Brit. Colonies. These emigrants are sometimes kept on board ship in the river or the docks for several days, or are sent to lodging-houses in the east of Lond., where they frequently remain for a week or ten days before the journey is resumed. Having regard to the fact that these vessels often come from ports infected with or suspected of cholera, the Sanitary Committee of the Corp. have directed their medical officer to examine all such complaints before the vessel hauls into dock, and to use all possible means to prevent the importation of epidemic diseases by way of the Thames. It appears that the Emigration Board, now represented by the Board of Trade, have no power over, or at all events do not recognize emigrants who arrive in the U. K. for purposes of transhipment, so that, as incomers,

the port sanitary authority is responsible for their sanitary condition. As, however, when cholera is epidemic on the Continent, the difficulty of detecting its presence in the incipient stage among a crowd of emigrants is very great, it is suggested as desirable to have a large depôt somewhere between Gravesend and Greenwich, in which all such arriving in the Thames for transhipment might be housed during their short stay in Eng. The charge of estab. and maintaining such a depôt would naturally fall upon the emigration agencies rather than upon the Board of Trade or the port sanitary authority. Some arrangement of this kind appears the more important because this system of sending over batches of emigrants from Baltic ports appears likely to continue, and because, to quote from the rep. of the port medical officer, "cholera is fast becoming endemic on the Continent of Europe."

EMIGRATION (from the Latin, *emigratio*).—To migrate is to move from one place to another; and the character of the migration was determined in Latin by the proposition denoting the direction taken: as *demigrare*, to change one's house in the same locality or city; *emigrare*, to quit the city; *immigrare* to enter it. *Emigration*, in its ordinary sense means, to leave one country in order to reside in another.

We speak of emigration here not so much in relation to its effect upon pop. in a national point of view, as upon the disturbing influences it has upon national and local mort. obs., unless proper allowance be made for its operation. In this respect, too, immigration has a like influence, in a contrary direction.

In a community in which the births and deaths were equal, and there was no migration or emigration, the pop. would remain stationary. In a pop. where the births are greater than the deaths, the pop. would increase in a corresponding ratio, but for the influence of emigration. These points are set forth with clearness by the Reg.-Gen. in his 33rd Rep. pub. 1872:

The natural increase of pop. is expressed by the excess of births over deaths; but the actual increase of the pop. of this country depends also further on the difference between the forces of emigration and immigration. The births regis. in the year [1870] were 792,787, the deaths 515,329, giving an ascertained increase of 277,458. The regis. of births is not quite complete, and to get the actual excess of births, some addition to this number has to be made. We have accounts neither of the numbers of the natives of Scotland and of Ireland entering England, nor of the numbers of Englishmen entering the two other parts of the U.K.; but it is quite certain that the excess is largely on the side of immigration into England, which tends to swell the pop. here. Upon the other hand, there is an ascertained efflux of English emigrants to the Colonies and to other parts; in fact the number of emigrants of English origin returned at the ports having emigration officers was 105,203. Deducting this number, the natural increase is reduced to 172,165; but as the estimated pop. for the middle of 1870 showed an increase of 292,519 upon that for 1869, it would appear that emigration was more than balanced by the immigration from Scotland, Ireland, and foreign countries.

This aspect of the subject will be further discussed under POP., LAW OF; and incidentally under MORT., LAW OF.

In 1863 Mr. Jardine Henry read a paper before the Inst. of Act. *On the relation of the Carlisle T. to the Gov., the Reg.-General's, and other T. of Mort.* The paper gave a general view of the effect of emigration upon returns of deaths among the pop. of E. and W., followed by an estimate of the extent to which any calculations based upon such returns, and the general census, must be thereby affected. This paper is only printed in abstract in the *Assn. Mag.*, and we are not aware of its being otherwise circulated.

In our art. DEATHS AS A MEASURE OF THE EXPEC. OF LIFE, we have shown the possible effects of emigration upon Mort. T.; as also that all T. constructed upon data not corrected in regard to the effects of emigration upon the pop. under obs. *must be incorrect.*

The special effects of MIGRATION will be considered under that head.

We furnish the following statistics of emigration for reference as the question may arise. They are taken from the 32nd Ann. Rep. of the Emigration Commissioners. But these must be read in the light of a later development. It was found by means of tests applied by the Commissioners of the Census of 1871 that those who emigrated did not all remain abroad. Application was made to the Emigration Commissioners, and accordingly the annexed T. was compiled:

Mr. Walcott, one of the Census Commissioners, remarks:

I have compiled the above T. from such returns as we have in the office, of the number of immigrants into the U.K. between the years 1863 and 1872 who landed at the ports of Lond., Liverpool, and Glasgow. Very few land at any other ports; so that the figures in the T. may be fairly assumed to represent the total of the immigration. Unfortunately the nationality is not distinguished, nor have we any means of estimating the number of English. But I presume that the great majority are English, Canadians, and Americans; in what proportions I am unable to say.

The table given on the next page shows the emigration from the U. K. in each of the 57 years from 1815 to 1871 inclusive; and the principal destinations of emigrants.

Immigration to the U.K. from 1863 to 1872 inclusive, so far as the Emigration Commissioners have received returns.

Year.	London.	Liverpool.	Glasgow.	Total.
1863	3437	13,591	537	17,565
1864	3590	20,714	1531	25,835
1865	3718	26,584	3241	33,543
1866	2890	25,747	2485	31,122
1867	4002	28,948	3696	36,646
1868	3818	29,808	no return	33,626
1869	2557	29,788	3702	36,047
1870	2535	33,923	5070	41,528
1871	2274	37,770	4972	45,016
1872	3667	31,235	6787	41,689
Totals	32,488	278,108	32,021	342,617

Years.	North American Colonies.	United States.	Australian Colonies and New Zealand.	All other Places.	Total.
1815	680	1209	*	192	2081
1816	3370	9022	*	118	12,510
1817	9797	10,280	*	557	20,634
1818	15,136	12,429	*	222	27,787
1819	23,534	10,674	*	579	34,787
1820	17,921	6745	*	1063	25,729
1821	12,955	4958	*	384	18,297
1822	16,013	4137	*	279	20,429
1823	11,355	5032	*	163	16,550
1824	8774	5152	*	99	14,025
1825	8741	5551	485	114	14,891
1826	12,818	7063	903	116	20,900
1827	12,648	14,526	715	114	28,003
1828	12,084	12,817	1056	135	26,092
1829	13,307	15,678	2016	197	31,198
1830	30,574	24,887	1242	204	56,907
1831	58,067	23,418	1561	114	83,160
1832	66,339	32,872	3733	196	103,140
1833	28,808	29,109	4093	517	62,527
1834	40,060	33,074	2800	288	76,222
1835	15,573	26,720	1860	325	44,478
1836	34,226	37,774	3124	293	75,417
1837	29,884	36,770	5054	326	72,034
1838	4577	14,332	14,021	292	33,222
1839	12,658	33,536	15,786	227	62,207
1840	32,293	40,642	15,850	1958	90,743
1841	38,164	45,017	32,625	2786	118,592
1842	54,123	63,852	8534	1835	128,344
1843	23,518	28,335	3478	1881	57,212
1844	22,924	43,660	2229	1873	70,686
1845	31,803	58,538	830	2330	93,501
1846	43,439	82,239	2347	1826	129,851
1847	109,680	142,154	4949	1487	258,270
1848	31,065	188,233	23,904	4887	248,089
1849	41,367	219,450	32,191	6490	299,498
1850	32,961	223,078	16,037	8773	280,849
1851	42,605	267,357	21,532	4472	335,966
1852	32,873	244,261	87,881	3749	368,764
1853	34,522	230,885	61,401	3129	329,937
1854	43,761	193,065	83,237	3366	323,429
1855	17,966	103,414	52,309	3118	176,807
1856	16,378	111,837	44,584	3755	176,554
1857	21,001	126,905	61,248	3721	212,875
1858	9704	59,716	39,295	5257	113,972
1859	6689	70,303	31,013	12,427	120,432
1860	9786	87,500	24,302	6881	128,469
1861	12,707	49,764	23,738	5561	91,770
1862	15,522	58,706	41,843	5143	121,214
1863	18,083	146,813	53,054	5808	223,758
1864	12,721	147,042	40,942	8195	208,900
1865	17,211	147,258	37,283	8049	209,801
1866	13,255	161,000	24,097	6530	204,882
1867	15,503	159,275	14,466	6709	195,953
1868	21,062	155,532	12,809	6922	196,325
1869	33,891	203,001	14,901	6234	258,027
1870	35,295	196,075	17,065	8505	256,940
1871	32,671	198,843	12,227	8694	252,435
Total ...	1,424,442	4,671,515	1,000,650	169,465	7,266,072
Average annual emigration from the United Kingdom			{ From 1815 to 1871 127,475 For the 10 years ending 1871... 212,824		

* The Customs returns do not distinguish the emigration to Australia during these 10 years, but it appears from other sources that the emigrants who went to this country were in 1821, 320; in 1822, 875; in 1823, 543; in 1824, 780; and in 1825, 458 persons. These numbers are not included in the totals of this T.

EMIGRATION INS.—From time to time projects have been put forward under this title : none of them very distinct or clearly defined ; none, we suspect, very successful. We give an outline of the projects as they have from time to time presented themselves.

The *Australian, Colonial, and General* L. Assu. and Annu. Co., founded 1839, announced :

No extra prem. will be charged to the assu. for the whole of life for voyage as cabin or intermediate passengers in approved vessels to, or for residence in, the Australian Colonies in approved situations. Distance from medical advice, occupation in whale fishery, or distant voyaging, will be covered by equitable prem.s ; but parties may proceed from port to port throughout the Australian Colonies in decked vessels of 100 tons or upwards.

Prem.s on pol., wherever effected, may be paid at any settlement in Australia where there is a bank authorized to receive the same ; but always at the same bank, unless permission to change shall have been given.

Pol., whether effected in Eng. or the Australian Colonies, may be made payable in either by indorsement, provided the assured do not quit the country in which the pol. is made payable, without notice to the directors.

The *Agriculturist* L., about 1847, agreed to ins. farmers or agriculturists going out to settle in the Australian Colonies, the U.S., Brit. N. America or Canada, at the common rate of prem.

In 1849 the *Colonization* Assu. Corp. was founded, for the purpose of carrying on life ins. in connexion with colonization. Its hist.—a remarkable one—has been given under its name.

In 1849 the *Universal Emigration and Colonization* Ins. Co. was founded and carried on bus. until 1852. Mr. William Bridges was Sec. of the Co. We have never met with a prosp. of this Co., and therefore cannot state its scheme of operation. But in a work pub. by Mr. Bridges about this date, *The Prudent Man ; or how to acquire Land and bequeath Money by means of Co-operation*, the following outline of an emigration ins. scheme is given :

Individuals unite in building sos., and pay, month by month, a sum somewhat greater than the rent of the house they occupy ; and after an accumulation of funds has been made, the tenants have the privilege (determined by ballot or auction, or otherwise) of receiving in advance, on certain conditions, the sum requisite to purchase tenements. It thus happens that the tenants, without paying much more than their ordinary rent to a landlord, become their own landlords ; they acquire their own home and hearth, and become conservatively bound to their native country by the most powerful and enduring ties. The same principles, *mutatis mutandis*, imperfectly tested by the freehold land sos., are applicable to land as well as house property ; and whether as regards home or distant colonization, the object to be attained is the same. But this object may, by the aid of science and method, be made an immediate attainment to all, instead of a prospective and distant result determined by the no-principle of ballot or auction. Neither farmers at home nor colonists abroad have, in general, capital to spare for the absolute purchase of lands at a "sufficient price" ; and both classes, especially the latter, are becoming more and more averse to sinking income in rent—labouring hard, and leaving others, of an unproductive class, to reap the fruits. The practical settler or colonist is in general a very moderate capitalist. He can, perhaps, afford to make the venture of embarking in a new and wider field of action, but he has not so much to pay down. He can afford, in ann. contributions, a "sufficient price" for land. He cannot pay a sufficient price in one sum, still less can he afford to pay down an insufficient price—that is, a price not sufficient, by the action of combined investment, to give attraction and value of any sort to colonial or other waste land ; for, however universal the practice, the poor settler ought neither to buy nor be endowed with the raw material of the waste or the wild. A man who has lived in civilized England must have civilization as well as land for his money.

The preceding proposition, not very clearly stated, was to be reduced to practice as follows :

What this kind of ins. proposes to do for the yeoman—the true mainstay of every country—is, to give him at once, in return for a guaranteed prem. rent, an immediate possession in land ready to be occupied, instead of merely assuring his family the reversion of a sum of money at his death—immediate acres instead of prospective pounds. Instead of paying £3 or £2 a year to secure the £100 to his family at his death, or to himself or his heirs in twenty or thirty years, that prem. is coupled with his rent during his life, or a period agreed on to constitute his farm an absolute possession to himself and family, a result which the mere payment of ann. interest or rent would never accomplish, were it paid for double or ten times the period. The moderate add. to the rent makes every payment of rent an instalment towards the purchase money, if he live, and each and every such payment equivalent to the whole purchase money if he die. The improvement of the land under such a stimulus to exertion is surely the best of all securities to the Government or Colonization Corp., and the mortgage of lands thus systematically alleviated might be made in the outset to supply all the necessary funds to initiate the physical development of imperial territory.

In 1850 Mr. William Bridges pub. a pamph., *Freehold Assu. and the Farmers Estate So.*, wherein he advocated the application of his system of ins., orig. adapted to emigrants, to tenant farmers in England and Ireland—especially the latter.

In 1853 the *Anglo-Australian* L. organized a system of "Emigration Assu.," of which the following were the leading features :

In order to afford every facility to persons about to emigrate, to enjoy the benefits of life assu., without the heavy extras which are in many instances connected with emigration, or the great danger of forfeiting their pol., this Co. has had a set of T. calculated expressly for this department, in which the contingencies connected with sea voyages, localities, gold diggings, etc., have been considered, so as to relieve the assu. from the fear of the forfeiture of their pol., and the Co. from undue risks. This department comprises :—

Permanent Assu.—1. Assu. on the lives of emigrants, for sums from £25 and upwards at death, whenever and however it may occur, whether at sea or on land. These pol. will allow the assu. to travel by sea as often as required, and to reside in any part of Australia, New Zealand, Van Dieman's Land, and any other British colony, or foreign country, except the East and West Indies, the west coast of Africa, and some very unhealthy parts lying within 30 degrees of the equator. These pol. will also allow the assu. to proceed to the gold fields of Australia, and to remain there, at pleasure, without extra prem. or forfeiture of the pol.

2. Universal assu. for sums for £25 and upwards, under which the assu. may travel and reside in any part of the globe, without extra prem. or forfeiture of pol.

3. *Casualty Assu.*; comprising—(a) Life casualty. The assu. of £100 and upwards against the risk of accidental death on board of steamers, or other vessels, either in port or at sea. (b) Goods casualty. To insure the wearing apparel, outfits and goods of passengers, on board steamers and sailing vessels, against loss by fire or other accident therein. (c) Loan assu. Whereby emigrants will be assisted with loans, of various amounts, on a system of temporary annu.

Another phase of Emigration Ins. is that of insuring a certain fixed sum on the life of each emigrant in the event of death from natural causes, or from casualty, on the voyage. The leading accident ins. cos., and from time to time the life offices, have the offer of this class of risk. Prudence will always cause the rejection of proposals for aggregating risks—the principle of ins. being their dispersion. The *Northfleet*, run down off Dungeness, 22 Jan. 1873, was an instance of the danger of this class of bus. [MARITIME PASSENGERS, INS. OF.] [SHIPWRECKS.]

EMMENS, STEPHEN H., D.C.L., was Man. of *Church of England* from the retirement of his father in 1868 down to 1873. He was educated as an engineer, and is the author of various works on scientific subjects, several of which are pub. in Weale's well-known series. He has contributed from time to time to ins. literature.

EMMENS, WILLIAM, was first Sec. and afterwards Man. of the *Church of England* Ins. Co. from its formation in 1840 down to 1868, when he retired from the management and joined the board of the Co. He was trained to the bus. in the *Alliance*, which office he entered on its estab. in 1824, and became its Assistant Sec. under Mr. Hamilton. Mr. Emmens is still an active man of bus., being a prominent director of the National Bank. We have in our hist. of the *Church of England* Office spoken of the advantage the Co. derived from his clear-headed perception of bus. questions. It was his habit to prepare an ann. statement of the affairs of his Co., which he submitted to the directors; and it was remarkable how nearly this generally corresponded with the results of the periodical valuations made by an independent actuary. Mr. Emmens gave to the *Post Mag.* the first ins. adv. it ever contained.

EMPALEMENT.—See **IMPALEMENT.**

EMPEROR FIRE INS. Co.—Founded in 1855 [Deed dated 29 Sept. 1854], under the auspices of the *Emperor* L. (with an authorized cap. of £500,000, in 100,000 shares of £5), to be worked in connexion with that Co. The bus. is small, all "special risks" being carefully avoided. For some years indeed the Co. protected itself by the re-insurance of its entire bus., being content with a commission over and above that paid to its agents.

At the close of 1855 it took over the fire bus. of the *National Guardian*.

Mr. J. T. Eddy was the first Man.; but since 1856 Mr. Clarke, jun., has been at the helm.

EMPEROR LIFE ASSU. So.—Founded in 1853 under the provisions of the Joint-Stock Cos. Regis. Act, with an authorized cap. of £100,000, in 20,000 shares of £5, of which £1 per share was to be paid up.

The orig. prosp. set forth the following special features:—"All pol. granted by this So. are absolutely indisputable." "That the pol. of this Co. may be always available as security for the advance of money, facilities are given for their transfer, and when regis. in the office, they become payable to the holder, and no other assignment is necessary." "When the payment of prem. is discontinued from poverty or any other cause, the value of the pol. will be equally assessed, and the amount may be paid to the assured in one sum, or be converted into an immediate or deferred annu." "Any member of the So. who, having paid 5 ann. prem. upon his pol., is unable, from misfortune or other cause, to continue his assu., may, by application to the directors, *have the prem. paid by the So. for the 3 following years*, the amount of such payments, with int. at 5 p.c., being deducted when the pol. becomes a claim." Half-prem. for 7 years. "Pol. are granted to any amount." "A pol. of assu. may be completed by a single payment, and the amount so paid may be afterwards obtained on loan, a sufficient security being given." "Diseased lives are assured on terms proportioned to the add. risk; but upon proof of restored health, an equitable reduction will be made in the amount of prem." "*Members of this So. assuring for £100 and upwards may in illness have the advice of the medical officer gratuitously.*" "Claims are payable to the pol.-holder within 14 days after satisfactory proof of death."

The D. of Sett. dated 20 Dec. 1852, contained (*inter alia*) the following provision:

That the several proportions of the profits derived from the bus. of the life department of the So. prescribed in clauses 88, 97, 98, of these presents, to be applied to a benevolent fund, shall be appropriated to a fund to be called the Shareholders' and Pol.-holders' Benevolent Fund, which fund shall from time to time be applied by the board of directors, with the approbation of a general meeting, to and for the use, benefit, and assistance of the shareholders and pol.-holders of the So., whether former or existing, who may need pecuniary aid, either in the shape of annu., allowances or gratuities, or in such other manner as to the said board may seem fit. And furthermore that a portion of such fund may also be applied by the said board in the forwarding, erecting, and maintaining of an inst. or institutions, or to the carrying out of any other purpose beneficial to the interests of the shareholders and pol.-holders of the So., former or existing, their widows and children, as to such board may seem fit and expedient.

The preceding were the views of the founders of the Co.—they have not all been carried into effect by their successors. The founders were Mr. Edward Curteis and Mr. John Fothergill,—from whom the present directors purchased the bus. Mr. Edward Curteis became Man.-Director; Mr. Cyrus Reed Edmonds was Sec. Mr. J. T. Eddy became

Man. in 1855; and the present Sec., Mr. E. Clarke, jun., has successfully regulated the destinies of the office since 1856.

In 1856 the Co. took over the few pol. which had been issued by the *Constitution L.* founded in the preceding year.

70 p.c. of the profits are distributed among parti. pol.; and may be applied in the ordin. methods, or "to the conversion of a pol. [for life] into one terminable at a given age."

The Co. has a "Temperance Branch," and any extra profits resulting from its working are to be applied to members of that class.

Building So. ins. are granted.

In 1871 the Co. issued a new T., combining the bus. of life ins. with that of a savings bank. The office receives deposits, and gives the same int. as savings banks in case of withdrawal, but also gives a life pol. during the investment, in all cases where the age does not exceed 32, for more than double the amount invested; so that in the event of the decease of the depositor, for each £1 deposited, from £2 os. 4d. to £2 13s. 3d. will be paid to his representatives. Thus a person aged 30 may deposit £10 and secure a pol. for £20 15s. payable at his death; or he may withdraw the £10 with int. at any time, and surrender his pol.; or he may borrow the £10, or any part of it, at the current rate of int. and leave his pol. as security; receiving it again when he returns the loan; or in the event of death the pol. will be paid less the amount borrowed. [DEPOSIT INS.]

EMPIRE ASSU. CO. FOR LIVES, ANNU., SURVIVORSHIPS, ENDOW., REV.—Founded in 1854, with an authorized cap. of £100,000, in 20,000 shares of £5. The orig. share prosp. said:

The large increase of the number of cos. estab. of late years for the purpose of life assu. had originated, in the minds of many persons, a belief that the supply exceeded the demand, and, of a consequence, that an extension of the number is uncalled for and undesirable. This opinion, formed either without due consideration, or upon an insufficient knowledge of the requirements and capabilities of our pop., was, from interested motives, emphatically asserted, and as industriously circulated, by the older offices, whose bus. is diminished by the estab. of inst. offering more liberal terms to the public and larger benefits to the assured; in fact, so confidently and pertinaciously was it urged, that the question at length attracted the attention of Parl., and has now been authoritatively settled in the negative. Nor could it well be decided otherwise when it is remembered that, out of a pop. of 160,000,000 in the U.K. and Colonies, only about 200,000 persons have availed themselves of the advantages of life assu. After hearing all that could be said in support of the assertion, that more life offices are not required, and that obstacles should be opposed to their formation, the Select Committee of the House of Commons on Assu. Asso. appointed last year have declared in their Rep., "That the ground hitherto occupied by these useful inst. has been comparatively limited and that their application is capable of great extension."

The promoters then proceed to set forth their views upon the best method of securing a portion of this ins. bus. of the future as follows:

Various assu. sos., estab. in recent years have introduced some most important and valuable principles, tending to the advantage of the public, and extending both the application and benefits of life assu.; but, however important the *principles* of an assu. so. may be, it is now well understood that an *extensive and well-organized system of agency* is the best, and, in fact, the only sure means of securing a large amount of bus.

The directors of the *Empire Assu. Co.*, with the view of securing the co-operation of a large and efficient body of working agents, have determined upon giving them a *direct and substantial interest in the realized profits* of the Co., which cannot fail to act most advantageously, not only to the agents themselves, but also—by extending the bus.—to both the pol.-holders and shareholders of the Co.

The agents of the *Empire Assu. Co.* are, therefore, remunerated for their services to the extent of the ordinary commission allowed by established cos., viz. 10 p.c. on the first ann. prem. for assu., and 5 p.c. on renewal prem., and further by a portion of the Co.'s realized profits, which, by an *express clause in the D. of Sett.*, will be distributed *in cash*, at the periodical divisions of profits, amongst those agents who shall have contributed to the Co.'s bus., in proportion to their ordinary commission; by which means their exertions will be rewarded according to the efficiency of their services.

The superiority of the above over the general method of remunerating agents, viz. wholly out of receipts without reference to profit, must be manifest to every one; and it is, therefore, surprising that there should be but one assu. so. in existence in whose constitution will be found such a feature. In that so., in consequence of the office addressing itself to a particular class, the bus. has been somewhat limited; yet the principle has worked in the *most satisfactory manner*. . . .

The extra commission was to be given to *solicitors, medical men, and officially appointed agents*.

And by another express clause in the Co.'s D. of Sett. there has been provided a remuneration out of realized profits to be distributed amongst *those persons who may introduce agents to the Co.* (that is, amongst those upon whose recommendation parties may become appointed official agents), in proportion to the amount of bus. such agents may have brought to the Co.

It is evident therefore, that any person, whether already an agent or not, who may benefit this Co. by procuring respectable and efficient agents, either in his own or other districts, will himself have a *direct interest* in the amount of the bus. that such agencies may hereafter produce. This feature in the constitution of the *Empire Assu. Co.* is also obviously an important one, and is based upon the principle of a legitimate reward for benefits conferred upon the Co.

70 p.c. of the profits were to be apportioned to parti. pol.-holders; 15 p.c. to shareholders; 11 p.c. by way of extra commission to the working agents of the Co.; and the remaining 4 p.c. to persons introducing agents.

Due care has been taken to introduce such of the secure principles of assu. of modern introduction as have proved beneficial to the public, and at the same time conducive to the interests of assu. cos. The directors will continue to exercise a *strict economy in all the expenditure* of the Co., but at the same time having regard to the due extension of the bus.

A later ed. said:

Since the preceding prosp. was written, the Co. has met with complete success. The principle which the directors have adopted, and which is universally approved, for remunerating the agents,

continues to be very effective, and has already enabled them to secure a large number of highly respectable and influential persons to represent the Co. in the provinces and elsewhere. Its past success and present position are such as convince the directors that their most sanguine expectations will be more than realized.

The board was respectably constituted. The Consulting Act. of the Co. was Mr. F. G. P. Neison. Its Act. and Sec. Mr. Edwin H. Galsworthy.

The other "special features" of the Co. were WHOLE-WORLD POL. Lives resident in India and China ins. at moderate prems. Deposit ins. on lives of mariners under new T. Half-credit system. Pol. of 12 months' standing not void by suicide. "The T. of prems. of this Co. have been expressly calculated from the most recent data," etc.

The bus. of the Co. was carefully conducted, but it was small; and accordingly in 1857 it was trans. to the *Family Endowment*.

EMPIRE ASSU. CORP. FOR LIFE, SICKNESS, ENDOWMENT, AND GUARANTEE BUS. (designated in this work as "*Empire*, 1865").—Founded in 1865, with an authorized cap. of £500,000, in 50,000 shares of £10; of which in all about £150,000 was subs. The regis. objects of the Co. were:

Purchase of *Brit. Union Assu. Co.* heretofore existing under the Joint-Stock Cos. Acts of 1844 and 1862, but not its liabilities, except on pol. now in force; and of other cos.; life assu.; of annu., endow., or rev. int. bus. in all its branches; ins. against sickness and personal accident in all its branches; and of a loan co.; fire ins.; bus. of a guarantee co.; advance of money on freehold, copyhold, leasehold, or other property; advance of money to shareholders on security; of erecting, purchasing, or repairing dwelling-houses or premises; borrowing money, and investing in Gov. funds.

The promoter of the Co. was Mr. G. W. Gidley Lake, and he became its Gen. Manager. The Co. had no sooner got fairly afloat than it not only took over (1) *Brit. Union* (1863), named in its objects; but in rapid succession (2) the *City and County* (1863); (3) *Scottish Industrial* (1863); (4) *Friend-in-Need* (1862). It thus acquired an agglomeration of risks not only remarkable for their variety, but prob. also for their intrinsic badness. Branches were estab. in many parts of the U.K., and many of the agents or man. of these branches became directors of the parent Co.

The career of such a Co. could not be a very long one. In this case it was particularly short. On the 18 April, 1867, it was resolved to wind up the Co. voluntarily; and on 4 May following an order was made for winding up under the Court. It will be convenient to adopt the narrative of the official liq. at this point:

In 18 months it was ordered to be wound-up compulsorily. By that time there were some 150,000 insurers, the majority making weekly or monthly payments. In its short career it had become the focus of 5 amalg. To test the validity of two of these the Vice-Chancellor to whose court the winding-up is attached has already sanctioned as many suits. According to the register of members, there are nearly 400 contributories, the majority of whom contest their liability. To this time I have received upwards of 1000 claims on the Co., respecting nearly the whole of which it is my duty to require more or less formal proofs.

When it collapsed, the Co. had in the U.K. about 700 agents, the balances appearing due from whom exceeded £25,000. So generally, however, were these balances repudiated when applied for, that the Court appointed a special commission to take evidence in relation to them during the past long vacation in London, Manchester, and three of our principal towns. In spite of this assistance and my best endeavours, not more than 1 p.c. has yet been recovered. An early difficulty in dealing with them arose from the fact of there being, in respect of the agents' accounts, a gap of four months in the books of the Co., and in their 18 months' existence they had managed to bring into use some 850 books, without reckoning those at the various agencies, or any—an equal number—handed over by the amalgamated cos. This gap I have had to supply from loose sheets, at a labour which may be inferred when I state that a great portion of the documents of the Co. came into my possession in about such order as would have resulted from their being shot from a cart. Perhaps their condition is mainly to be explained by the circumstance, appearing from the claims sent in, that to nearly every one of the Co.'s clerks—and some 30 were employed—a considerable arrear of salary was due.

When the concern could go on no longer, a meeting of the shareholders was held with a view to winding it up voluntarily, and a resolution to that effect was declared by the chairman to be carried, and a liquidator appointed, who, since I have been in office, has rendered a claim on the Co. for £1600 (apart from his liquidatorship expenses), and which claim to the extent of £600 is on an unpaid check for salary of the man., drawn when there were cheques already issued for £1300 more than the bal. at the Co.'s bankers, the remainder being for an alleged deposit by the man., who, through his assignee, claims £2600 for unpaid salary, and who, under examination on oath, has admitted that a sum of £10,000, payable under the articles of asso. for promotion money, was, in fact, payable to him, he having assumed another name [George Bailey] for the occasion.

By means of the same promotion money the int. in the Co. of nearly every director has been made to appear paid up. . . . The Co. issued one balance-sheet only. I have in my hand, however, two of the same date, materially differing in nearly every line, but both bearing the names of the same auditors. One certainly does correspond with the balances in the Co.'s books, though that is of small real value, since the cashbook itself contains at once too much and too little. This account was not issued. Scarcely an item in the other corresponds with the books, and this was issued.

We must now turn to the proceedings in the Court of Chancery in view of further elucidation of this remarkable hist.

In Admiral Sir Henry Leake's case, before the Court in 1870, the following facts were elicited. Admiral Leake had been Chairman of *Brit. Union*. On the 1 September, 1865, an agreement was made between three of the directors of that Co., and Mr. Lake on behalf of the *Empire*, whereby the bus. of the former Co. was sold to the latter for £3000. This agreement contained a clause to the effect that shareholders in the former Co. might come in and claim shares in the new Co. credited with £1 paid. On 25 October an extraordinary gen. meeting of the *Empire* was held, at which that Co. agreed to pay Charles Bevan £1500; and a provisional agreement to pay George Bailey £10,000 was confirmed. Afterwards Admiral Leake was nominated Chairman of new Co.; Lake paid

up Admiral Leake's 50 shares out of promotion money. The Court held the Admiral to be liable for 50 unpaid shares. Captain Hobart, another director, was fixed in a like manner.

We next reach the *City and County*. In Oct. 1866, an agreement was entered into between that Co. and the *Empire*, by which the bus. and assets of the *City and County* were to be trans. to the *Empire* upon payment by the *Empire* of £2000 due from the *City and County* to the European Bank. One of the terms of the arrangement was that the shareholders of the *City and County* should be entitled to have allotted to them two shares in the Corp. for every share held by them in the Co. On the 9 Oct. 1866, the agreement was unanimously adopted at a meeting of the Corp. A list of the members was furnished to the Secretary of the Corp., and shares were allotted to them pursuant to the agreement. The deed, which was executed in conformity with the agreement, was dated the 20 Nov. 1866. A new prosp. was shortly afterwards issued by the Corp., with a list of shareholders appended.

Out of this amalg. the following questions arose, at the suit of some dissentient shareholders. The *City and County*—which was a fire and life office—had power with the consent of an extraordinary gen. meeting to trans. or sell its bus., or purchase or amalg. with any other co. of the like nature. In Oct. 1866, the agreement was entered into with the *Empire*, one of the regis. objects of which Co. was to purchase the bus. of other assu. cos. The basis of the arrangement was that the *Empire* Corp. should take over the assets and liabilities of the *City and County*, giving to its shareholders shares in the Corp. in exchange. The objects of the Corp. were more extensive than those of the Co., including that of a guarantee co., and the purchase and sale of houses and other property; and the question to be determined was whether a shareholder in the *City and County* became by the amalg. a shareholder in the amalgamated Co. The Court held that he did not. In the course of his judgment V. C. Wood said:

It is difficult to say what the word *amalgamate* means. I have not the least conception of what the full legal effect of the word is. We do not find it in any law dictionary or expounded by any competent authority. But I am quite sure of this, that the word *amalgamate* cannot mean that the execution of a deed shall make a man partner in a firm in which he was not partner before, under conditions of which he is in no way cognizant, and which are not the same as those contained in the former deed. It is true that in this instance parties engaged in a concern for ins. of a particular character have authorized their directors to amalg. with another co. It is possible that this authority may go thus far: it may empower the directors, without being called to account for so doing by this Court or any other jurisdiction, to sacrifice or to give up (which implies something more) the whole of their bus., and to transfer their assets, if they think fit, to some other co., allowing that other co. to carry on their bus. on the best terms they can make with them. In carrying out this the directors may possibly be authorized by the clause to say: you who do not like this arrangement must simply lose; we have amalgamated one co. with the other (which seems to be a process of annihilation or extinction rather than anything else), and we have placed all your assets in the hands of another concern. But that does not imply that the dissentient shareholders, besides losing all their assets, are personally bound to take their part and lot in the new concern.

Accordingly an order was made to rectify the regis. of the amalgamated co. by striking out the names of shareholders in the *City and County* who had continuously declined to sanction the amalgamation or accept the new shares. This has since become a leading case.

We next reach the case of the *Scottish Industrial*, which, on the 11 Oct. 1866, entered into an agreement with the *Empire* for an amalg., by which the *Empire* Co. was to take over the whole assets and liabilities of the *Scottish Industrial*, and to give to the shareholders of the latter shares to the amount of £1050, on the same terms with reference to the amounts paid up as those shareholders then stood on with respect to the shares in the *Scottish Industrial* which they then held. A deed carrying it into effect was executed by the *Scottish Industrial* and sent to the *Empire*, and immediately thereafter the Sec. of the *Scottish Industrial* began collecting the certificates of the shares of the shareholders in that Co., alleging that he did so "for exchange" for shares in the *Empire*. The shareholders in the *Scottish Industrial* were then placed upon the regis. of the *Empire*. V. C. Wickens held that the amalg. agreement between the two Cos. was *ultra vires*, on the ground of diversity of objects; and this was confirmed on appeal. The amalg. was consequently set aside.

The proceedings consequent upon the amalg. with the *Friend-in-Need* will be set forth in our hist. of that Co.

In Aug. 1873 an arrangement was come to between the liquidators of the *Friend-in-Need* and the *Empire* in view of terminating the protracted litigation. The liquidator of the *Empire* is Mr. A. A. James; and it is fortunate for all concerned that they have fallen into such good hands. We may hope the Co. will soon be among the things that are past.

EMPIRE FIRE AND LIFE INS. Co.—A project under this title was set on foot in 1861 by Mr. William Canwell. It did not go forward.

EMPIRE MARINE INS. Co., LIM.—Founded in Liverpool in 1863, with an authorized cap. of £1,000,000, in 100,000 shares of £10. In 1867 the Co. passed into liquidation.

EMPIRICS.—A sect of physicians, founded in the 3rd century B.C., who contended that all reasoning respecting the animal economy was useless; and that experience and obs. were the only foundations of medicine. This affords a wonderful instance of the modern misuse of terms. Empiric is now used to denote a dealer in nostrums; a charlatan; a quack. The very opposite of its original signification!

EMPLASTICS.—Medicines which have a tendency to cause constipation, and shut up the pores of the body.

EMPLOYERS AND EMPLOYED.—The uses of Life Ins. develop themselves in a thousand forms. Here is another and important adaptation :

A firm in London have recently assured the lives of 3 of their workpeople for £500 each, on the following plan :—

- I.—The firm undertake to pay the prems. without cost to the assured.
- II.—Should any of these workpeople die before arriving at the age of 60, the amount assured to be immediately paid to the widows and families, or other representatives of the deceased.
- III.—Should they attain the age of 60, the amount they are severally assured for, to be expended in the purchase of annu. which will yield to each of them an income of £46 10s. 10d. for the remainder of their lives.
- IV.—Should any of the assured quit the service of their present employers before they have attained the age of 60, the pol. of such persons to be surrendered, the firm to receive the official value thereof.

What can be a more suitable reward for years of faithful service? What more likely to induce faithful and energetic service than the knowledge that an independence will in due course be achieved? The Co. selected in this instance was the *British Empire Mut.*

EMPLOYEE'S INTEREST IN LIFE OF EMPLOYER.—It has been held that under certain circumstances an employé has an insurable interest in the life of his employer.

[INSURABLE INTEREST.]

EMPLOYMENTS, INFLUENCE ON HEALTH AND LONGEVITY OF.—See OCCUPATIONS.

EMPORIUM (from the Greek, a *trading place*).—A place for wholesale trade in commodities carried by sea. The name is sometimes applied to a seaport town; but it properly signifies only a particular place in such town.

EMUNCTORIES.—The excretory ducts of the body.

ENABLING STATUTE.—The 32 Henry VIII. c. 28 (1540). By the Common Law all persons may make leases to endure so long as their interest in the land continues, but no longer. This, however, affords no certainty. The preceding stat. enabled—1. A tenant in tail to make a lease for 3 lives, or 21 years, to bind his issue. 2. A husband seised in right of his wife in fee-simple, or fee-tail, to make a similar lease to bind his wife or her heirs, provided she join therein. 3. Ecclesiastical persons seised of an estate of fee-simple in right of their churches (not parsons or vicars who are seised for life only) to make leases to bind their successors. But certain requisites are to be observed in making those leases. The powers of this Act have been modified by 19 & 20 Vict. 120, s. 35 (1856).

[LEASES.]

ENACT.—To act, perform, or effect; to estab. by law; to decree.

ENANTHESIS (from the Greek, signifying a *blossoming within*).—Rash exanthem; an efflorescence from within, or from internal affection; fever, accompanied with rash: comprising *rosalia*, *rubola*, and *urticaria*. [EXANTHESIS.]

ENCEPHOLOCELE.—Hernia of the brain. There are two kinds of this disease: one occurs in young infants, before the skull is completely ossified; the other presents itself after the destruction of a part of the skull in consequence of disease, accident, or the operation of the trepan.

ENCUMBERED ESTATES ACT, 1848—11 & 12 Vict. c. 48. Encumbered Estates Court Act, 1849—12 & 13 Vict. c. 77.

ENCUMBRANCE.—See INCUMBRANCE.

END OF RISK.—See TERMINATION OF RISK.

ENDEMIC (from the Greek, signifying *among a people*).—A designation for diseases peculiar to the inhabitants of particular countries—*native* diseases; as ague in marshy countries, goitre in Switzerland, etc. The term is somewhat analogous to the term *indigenous* as applied to plants. It is in a general sense the opposite of epidemic.

ENDEMIC DISEASES.—In the Rep. of the Brit. Asso. for 1834 there is contained a special rep. by Dr. William Henry, F.R.S., *On the State of our Knowledge of the Laws of Contagion*, in which occur the following passages :

This view of the subject of contagion would be incomplete without noticing a class of diseases which have been ascribed to causes of much more extensive operation, and are generally contrasted with those of a contagious nature. They are named *endemic* and *epidemic* diseases. Both agree in attacking a number of individuals; but the former are more limited than the latter as to the extent of their diffusion, and may often be traced to causes of local operation.

1. Acute or febrile *endemies* prevail, either constantly or periodically, over tracts of country of considerable area; or they may be confined to a province, a district, a city, a street, or a particular part of a street; or to a single building, or a house, or jail, or a penitentiary. When spread over an extensive space, several circumstances have been observed to be favourable to their production. Such are situation with respect to the level of the sea, or that of the surrounding country; the form of the surface, as inclined or flat; the nature of the soil or substrata; the quantity and quality of the water; the state of drainage and cultivation; the vicinity of forests, and of swamps and marshes. From marshy ground exhalations almost constantly ascend, which give rise to fevers of a peculiar type, called *remittents* when they occasionally abate, and *intermittents* when the symptoms are absent for distinct intervals. [FEVERS.] [MARSHES.]

In the art. "Vital Statis." in McCulloch's *Brit. Empire* [4th ed. 1854] Dr. Farr says under "Endemics":

The medical topography of Eng. is yet imperfect; but the provincial medical asso. is now diligently prosecuting this important part of medical inquiry. . . . From the vols. of the asso. before us, and other sources of information, it does not appear that at present any special endemic prevails in Eng. Agues are frequent in the marshy districts of the low eastern coast, in Lincoln, in Essex, in Kent, in Cambridgeshire. The mort. of the latter county, in which the agricultural is 61 p.c. of

the total pop., rises very high; the marshy Isle of Ely making it one of the most unhealthy counties in Eng. [now happily changed, see ELY]. The mort. does not fall particularly on infancy, as M. Villermé inferred from Mr. Rickman's T. of Mort. . . .

Wen, *Derbyshire neck*, or bronchocoele, exists all over Eng. to a greater or less extent. It is not frequent, except in some close valleys, surrounded by hills: from its having been common in Derbyshire, the Derbyshire neck designates the peculiar disease in this country. . . .

In a paper read by Dr. Thomas Moffat, M.D., F.G.S., before the Brit. Asso. in 1870, and in a similar paper before the same Asso. in 1871, it was shown that the geological systems of the country exercise an influence in regard to endemic diseases. Mr. Alfred Haviland is at the present time engaged in an extended inquiry of the same character. [GEOLOGICAL SYSTEMS, THEIR INFLUENCE ON DISEASES.]

Diseases of this order do not admit of a separate classification in the Reps. of the Reg.-Gen. [EPIDEMICS.]

ENDORSEMENT.—See **INDORSEMENT**; and **INDORSEMENT OF POL.**

ENDOWMENT.—Wealth applied to any person or use. The assuring dower to a woman; the setting forth a sufficient portion for a vicar towards his perpetual maintenance when the benefice is appropriated.—*Cowel*.

ENDOWMENT INSURANCES.—Ins. to become payable at a given age, or on a given event, other than death. Endowment Ins. admits of being practically applied to many most useful and beneficial purposes, which we shall proceed to recount under their more distinctive headings. It will be seen that Endowment Ins. as applied to children has been in practice in this country for several centuries.

Apprenticeship Ins.—The early schemes of apprenticeship ins., of which we have already given an account, were a species of Endowment Ins., although they degenerated into gambling schemes. One of the most useful and legitimate purposes of "Children's Endowments" at the present time is that of providing a fund for apprenticeship.

Children's Endowments.—The most ordinary form of Endowment Ins. is that of providing a sum of money payable to children on their arriving at a specified age. In the case of boys this may be applied either to educational purposes, or for advancing their interests in the world by apprenticeship or otherwise. In the case of girls such endowments are available for the purposes of education, or for marriage portions.

The first account we meet with of children's endowments is in *A Discourse upon Usurie, by waite of Dialogue and oracions, for the better varietie, and more delight of all those that shall read this treatise*, by Thomas Wilson, "doctor of the Ciuil lawes, one of the maisters of hir maiesties honourable courte of requests," first pub. 1572—we quote from the 3rd ed. 1584:

A merchant lendeth to a Corporation or Companie an hundred pound, which Corporation hath by statute a grant, that whosoever lendeth such a summe of money, and hath a childe of one yeere, shall have for his childe, if the same childe doe live till he be full fiftene years of age, 500 li (£) of money; but if the childe die before that time, the father to lose his principal for ever; whether is this merchant an usurer or no? The lawe saith, if I lend purposely for gaine, notwithstanding the peril and hazard, I am an usurer.

This passage is very remarkable in several respects. It clearly indicates the practice of raising money by life contingencies at a very early period. [LIFE CONTINGENCIES.]

In an announcement of the *Perpetual Office for the Charitable So. at Lond. Stone*, pub. 1710,—an office for ins. marriage, births, etc., after the manner of that period,—there was a branch "for support, instruction, and preferment of little children by a dividend at 7, and another at 14 years of age."

Among the schemes of the South Sea period was a "Co-partnership for insuring and increasing children's fortunes." It was held at the Fountain Tavern; but of the means it employed we have no details.

Mr. Francis Bailey, in his *Doctrine of Life Annu.*, etc., pub. 1810, said:

There are many parents at the present day who are desirous of providing endowments for their children, against they arrive at particular periods of life, when a sum of money is most frequently wanted: such as the time of their apprenticeship, or when they come of age, etc. Several of the assu. offices lately estab. in Lond. have pub. the rates at which they will guarantee such sums; and the present work will enable the public to determine how far it may be prudent to accept them.

The two offices he more particularly refers to here are the *Globe* (1803) and the *Provident* (1806); and he adds further concerning them:

In the T. of rates pub. by the *Globe* Assu. Co., and by the *Provident* Inst., the sums demanded for the endowments of children are in general full as much as (and from the age of 9 years and upwards are even more than) the present values, at 5 p.c., of £100 certain to be received at the end of the given term without any contingency. For instance, £62 11s. 2d. is required in ready money by the *Globe*, and £62 by the *Provident*, for the payment of £100 on the event of a child aged 11 arriving at the age of 21 years; whereas either of those sums put out at int. at 5 p.c. would amount to more than £100 at the end of that period, without the liability to loss in case the child should happen to die before that time!!! No person can, I think, be so blind to his own interest as to risk his money in this absurd way.

The *Mut. Ins. Benefit Inst.*, 1820, had a scheme of "Endowments for Children," the payments being monthly; and endowments of £10, £20, or £30, might be secured at age 14; or of £25 or £50 at age 21. There was this condition: "If the member should die before the completion of the endowment, the engagement will not be forfeited, but still be granted to the child at the stipulated age, in proportion to the sum paid on behalf thereof; provided notice of the death of the member be given within 6 months. The child (or any other person on its behalf) will also have the option of paying for its full completion." Nothing was said as to the death of the child.

The *British Commercial*, 1820, had a special scheme of "Children's Endowments" payable at 21. The scale of payment for £100 on attaining 21 was as follows—nothing being said in the prosp. as to any return in the event of that age not being reached :

	Immediate payment.	Ann. payment.		Immediate payment.	Ann. payment.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
From birth to 1 month ...	25 0 0	2 8 6	From 5 years to 6 years ...	48 3 9	4 8 2
" 1 month to 1 year ...	32 11 5	2 16 6	" 6 " 7 " ...	50 19 4	4 17 0
" 1 year to 2 years ...	36 1 4	3 1 9	" 7 " 8 " ...	55 15 2	5 10 0
" 2 " 3 " ...	39 9 1	3 7 5	" 8 " 9 " ...	56 11 8	6 4 9
" 3 " 4 " ...	42 11 2	3 13 8	" 9 " 10 " ...	59 11 7	6 14 10
" 4 " 5 " ...	45 7 10	4 0 5			

The *British Empire* (No. 1), 1839, announced: "Endowments will be granted to children or adults contingent on their attaining a given age, and may be contracted for so that in the event of death before attaining that age, the whole of the prems. without int. will be returned." The following was the T. of prems. charged for £100 on attaining age 21 : also with prems. returnable in the event of death before that age :

Ages.	Ann. Prem.	Ann. Prem. returnable.	Ages.	Ann. Prem.	Ann. Prem. returnable.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
3 months	2 19 4	3 4 11	7 years	5 3 10	5 9 4
6 "	3 0 4	3 6 0	8 "	5 14 3	5 19 11
9 "	3 1 5	3 7 2	9 "	6 6 6	6 12 4
1 year	3 2 2	3 8 0	10 "	7 1 0	7 7 0
2 "	3 7 7	3 13 4	11 "	7 18 6	8 4 9
3 "	3 13 5	3 19 1	12 "	8 19 11	9 6 5
4 "	3 19 9	4 5 1	13 "	10 6 9	10 13 6
5 "	4 6 10	4 12 2	14 "	12 1 5	12 8 5
6 "	4 14 9	5 0 2	15 "	14 7 8	14 15 0

The *Clergy Mut.*, 1829, has a branch under which clergymen of the United Church of England and Ireland, and of the Protestant Episcopal Church in Scotland, and the wives, widows, and children of such clergymen, may make an ins. for a capital sum of money, not less than £50 and not exceeding £1000, to be paid to themselves or to their nominees at the expiration of an appointed term of years stated in the contract, and any person may make like ins. to be paid, as above, to the child of a clergyman nominated in the pol. to receive it, upon the following terms :—

Ann. prem., or single present sum in lieu thereof, to be paid for ins. £100, to be received at the end of any given number of years.

Term of years at the end of which £100 is to be received.	Ann. Prem. to be paid for £100 to be due at the end of years as in Col. 1.	Single present sum in lieu thereof.	Term of years at the end of which £100 is to be received.	Ann. Prem. to be paid for £100 to be due at the end of years as in Col. 1.	Single present sum in lieu thereof.
	£ s. d.	£ s. d.		£ s. d.	£ s. d.
7	12 13 5	81 6 2	17	4 9 3	60 10 0
8	10 18 4	78 18 10	18	4 2 11	58 14 9
9	9 11 2	76 12 10	19	3 17 4	57 0 7
10	8 9 5	74 8 2	20	3 12 3	55 7 4
11	7 11 7	72 4 10	21	3 7 9	53 15 1
12	6 16 10	70 2 9	22	3 3 7	52 3 9
13	6 4 4	68 1 11	23	2 19 10	50 13 5
14	5 13 8	66 2 3	24	2 16 5	49 3 10
15	5 4 5	64 3 9	25	2 13 3	47 15 3
16	4 16 4	62 6 4			

"N.B.—If the party making the assu. on his own account, or if the party nominated in the pol. to receive the sum assured, shall die before such sum is due, the whole of the money paid for the same will be returned."

The *Church of England L.* (founded 1840) adopted, about 1856, a scheme of "Endow. for future children," calculated to be of great value. We take the following explanation of the plan from the prosp. of the Co. :

A most extensive set of T. has been computed expressly for the use of this inst., whereby married persons, or parties about to be married, may secure to every child, which may hereafter be born to them, a given sum, to be paid in each case on the child attaining any age (to be fixed at the time the assu. is effected) from 14 to 21 years inclusive.

Specimens of the rates for different ages of the husband and wife are given in these T., in which the ann. prem. ceases altogether at the death of either parent, and before the eldest child can possibly attain the age at which the endow. is to become payable.

Similar endow. may be secured: (1) By payment of a single prem. only; (2) by payment of an ann. prem., ceasing at the expiration of a given term of years; or, (3) by payment of an ann. prem., during a given term, but ceasing at the death of the father, in the event of his dying before the expiration of the term.

The advantages offered to young married persons by thus securing a fixed sum for every child (however great the number), which may hereafter be born to them, must be obvious to every person who reflects on the care and anxiety attendant on providing for a numerous family; and where the ann. payment ceases (as in the annexed T.), at the natural dissolution of the marriage, the consolation afforded to the surviving parent, by having a certain endow. secured to every child then living, without any further payment being required on the part of the office, must be equally evident and satisfactory. This application of the principles of life assu. is, in fact, more decidedly beneficial than any other, where the securing a provision for a future family is the sole object of the assured.

Here are the T. relating to the scheme:

Ann. Prem. (ceasing at the death of either the Husband or the Wife; or, in the event of their both surviving the term of 21 years, after the 22nd payment;) for securing £100 to every child on attaining 21 years of age—without profits.

Age of		Ann. Prem.	Age of		Ann. Prem.	Age of		Ann. Prem.
Wife.	Husb.		Wife.	Husb.		Wife.	Husb.	
		£ s. d.			£ s. d.			£ s. d.
18	18	13 12 3	18	23	13 11 5	18	28	13 10 1
19	19	13 9 0	19	24	13 8 2	19	29	13 6 10
20	20	13 5 6	20	25	13 4 8	20	30	13 3 5
21	21	13 1 10	21	26	13 1 1	21	31	12 19 11
22	22	12 18 0	22	27	12 17 4	22	32	12 16 2
23	23	12 13 11	23	28	12 13 4	23	33	12 12 3
24	24	12 9 8	24	29	12 9 1	24	34	12 8 2
25	25	12 5 2	25	30	12 4 9	25	35	12 3 11
26	26	12 0 6	26	31	12 0 1	26	36	11 19 6
27	27	11 15 6	27	32	11 15 3	27	37	11 14 10
28	28	11 10 3	28	33	11 10 1	28	38	11 9 11
29	29	11 4 9	29	34	11 4 9	29	39	11 4 9
30	30	10 19 0	30	35	10 19 1	30	40	10 19 4
31	31	10 12 11	31	36	10 13 2	31	41	10 13 8
32	32	10 6 5	32	37	10 6 11	32	42	10 7 8
33	33	9 19 7	33	38	10 0 3	33	43	10 1 4
34	34	9 12 5	34	39	9 13 4	34	44	9 14 8
35	35	9 4 9	35	40	9 5 11	35	45	9 7 8

Ann. Prem. (ceasing at the death of either the Husband or the Wife; or, in the event of their both surviving the term of 14 years, after the 15th payment;) for securing £100 to every Son attaining 14 years of age, or an equivalent sum to every Son or Daughter, or both, on attaining any other age, from 14 to 21 inclusive, according to the annexed scale—without profits.

Age of		Ann. Prem.	Age of		Ann. Prem.	Age of		Ann. Prem.
Wife.	Husb.		Wife.	Husb.		Wife.	Husb.	
		£ s. d.			£ s. d.			£ s. d.
18	18	11 16 4	18	23	11 15 4	18	28	11 13 8
19	19	11 13 4	19	24	11 12 4	19	29	11 10 8
20	20	11 10 3	20	25	11 9 3	20	30	11 7 7
21	21	11 7 0	21	26	11 6 0	21	31	11 4 4
22	22	11 3 7	22	27	11 2 7	22	32	11 0 11
23	23	10 19 11	23	28	10 19 0	23	33	10 17 4
24	24	10 16 1	24	29	10 15 2	24	34	10 13 6
25	25	10 12 1	25	30	10 11 2	25	35	10 9 7
26	26	10 7 10	26	31	10 6 11	26	36	10 5 5
27	27	10 3 5	27	32	10 2 6	27	37	10 1 1
28	28	9 18 8	28	33	9 17 10	28	38	9 16 6
29	29	9 13 9	29	34	9 13 0	29	39	9 11 8
30	30	9 8 6	30	35	9 7 10	30	40	9 6 8
31	31	9 3 0	31	36	9 2 4	31	41	9 1 5
32	32	8 17 2	32	37	8 16 8	32	42	8 15 10
33	33	8 11 0	33	38	8 10 7	33	43	8 10 0
34	34	8 4 6	34	39	8 4 3	34	44	8 3 9
35	35	7 17 8	35	40	7 17 7	35	45	7 17 3

The T. of "Equivalent" sums is given in the prosp.

The *National Life* (founded 1830) issued in November, 1873, a "new endow. prosp.," which furnishes the following explanation of its origin :

This branch of Life Assu. has hitherto been in a great degree neglected, owing probably to the absence of sufficiently extensive and reliable data on which to base a correct calculation of premiums. In order to insure that the error, if any, should be on the right side as regards the ins. office, the premiums have generally been set so high as to deter parents from making a provision for their children's education and start in life, such as they would frequently be glad to make if they were satisfied that the terms demanded from them were only fairly commensurate with the benefits to be received.

Impressed by these considerations, the directors of the *National Life Assu. So.* have lately caused an investigation to be made into the rate of mort. prevailing at early periods of life among the upper and middle classes in this country; and having obtained, by personal communications, accurate particulars respecting the dates of birth and death of more than 50,000 children, they have acquired materials for constructing T. of Mort. that may be employed with the utmost confidence as a basis from which to deduce proper rates of prem. for the assu. in question.

The premiums so calculated prove to be considerably lower than those that have been hitherto, and still are, generally charged; and the conditions, as stated below, of the Endow. pol. to be hereafter issued by the *National Assu. So.* on this lower scale of premiums, are, it will be seen, exceptionally liberal. The assurers will moreover parti. in the whole of the profits, which is not, it is believed, the case as regards endow. in any other office; and they will, in addition, be entitled to share in the profits yielded by the general non-participating bus. of the So.

Such assu. are especially adapted to provide the necessary funds for the school expenses of sons or daughters; the support of sons at college; the dowry of daughters; the entry of sons into professions or bus.

They are thus intended to enable persons with fixed incomes to meet, without inconvenience, when the proper time arrives, the expenses of educating their children, and providing them with means of obtaining a livelihood, which are so frequently occasions of difficulty and anxiety.

The following is the T. of ann. premiums, for the endowment of £100 on the child attaining to the ages set forth at the head of the cols.—with parti. in profits :

Age next Birthday.	10 Years of Age.	11 Years of Age.	12 Years of Age.	13 Years of Age.	14 Years of Age.	15 Years of Age.	16 Years of Age.	17 Years of Age.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	9 1 10	8 2 7	7 6 7	6 13 1	6 1 6	5 11 5	5 2 7	4 14 9
2	10 6 0	9 2 5	8 3 1	7 7 0	6 13 4	6 1 8	5 11 7	5 2 8
3	11 16 1	10 6 5	9 2 8	8 3 4	7 7 2	6 13 6	6 1 9	5 11 7
4	13 14 8	11 16 4	10 6 8	9 2 11	8 3 5	7 7 3	6 13 6	6 1 10
5	16 6 1	13 14 11	11 16 7	10 6 10	9 3 0	8 3 6	7 7 3	6 13 6
6	...	16 6 4	13 15 2	11 16 9	10 6 11	9 3 0	8 3 6	7 7 2
7	...	...	16 6 6	13 15 3	11 16 10	10 6 11	9 3 0	8 3 6
8	...	...	...	16 6 7	13 15 3	10 6 9	9 3 0	8 3 6
9	...	...	...	...	16 6 7	13 15 2	11 16 8	10 6 8
10	...	...	...	...	...	16 6 6	13 15 0	11 17 8
11	...	...	...	...	...	...	16 6 3	13 14 10
12	...	...	...	...	...	...	...	16 6 1

Table continued :

Age next Birthday.	18 Years of Age.	19 Years of Age.	20 Years of Age.	21 Years of Age.	22 Years of Age.	23 Years of Age.	24 Years of Age.	25 Years of Age.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1	4 7 11	4 1 8	3 16 1	3 11 1	3 6 6	3 2 4	2 18 6	2 15 1
2	4 14 11	4 7 11	4 1 8	3 16 1	3 11 0	3 6 5	3 2 3	2 18 6
3	5 2 8	4 14 10	4 7 10	4 1 7	3 16 0	3 10 11	3 6 4	3 2 3
4	5 11 6	5 2 7	4 14 9	4 7 9	4 1 6	3 15 11	3 10 10	3 6 3
5	6 1 8	5 11 5	5 2 6	4 14 7	4 7 7	4 1 4	3 15 9	3 10 9
6	6 13 4	6 1 6	5 11 3	5 2 4	4 14 5	4 7 6	4 1 3	3 15 8
7	7 7 0	6 13 2	6 1 4	5 11 1	5 2 2	4 14 4	4 7 4	4 1 1
8	8 3 2	7 6 10	6 13 0	6 1 2	5 10 11	5 2 0	4 14 2	4 7 2
9	9 2 8	8 3 0	7 6 8	6 12 10	6 1 0	5 10 9	5 1 10	4 14 0
10	10 6 5	9 2 5	8 2 9	7 6 5	6 12 7	6 0 9	5 10 7	5 1 8
11	11 16 2	10 6 2	9 2 2	8 2 6	7 6 2	6 12 5	6 0 7	5 10 5
12	13 14 7	11 15 11	10 5 11	9 1 11	8 2 3	7 6 0	6 12 2	6 0 5
13	16 5 9	13 14 3	11 15 8	10 5 8	9 1 8	8 2 1	7 5 10	6 12 0
14	...	16 5 6	13 14 0	11 15 5	10 5 5	9 1 6	8 1 11	7 5 8
15	...	...	16 5 3	13 13 9	11 15 2	10 5 3	9 1 4	8 1 9
16	...	...	...	16 5 0	13 13 7	11 15 0	10 5 1	9 1 2
17	...	...	...	...	16 4 9	13 13 4	11 14 10	10 4 11
18	...	...	...	...	...	16 4 7	13 13 3	11 14 9
19	...	...	...	...	...	...	16 4 6	13 13 2
20	...	...	...	...	...	...	...	16 4 5

The following explanations, which we have slightly condensed, accompany the T.

In the event of the child dying before attaining the specified age, the whole of the premiums that have been paid are returned.

In the event of the assurer dying, the premiums paid are also returned, or, if preferred, the pol. is exempted from payment of any further premiums, the sum assured being in that case reduced, so that it may be in the same proportion to the sum originally assured as the number of premiums actually paid is to the number covenanted to be paid when the pol. was effected.

For example, on an endow. of £100 for a child aged 2 years next birthday, payable at the age of 21, there would be due in all 20 premiums, of £3 16s. 1d. each. If in such a case the assurer died when 15 of such premiums had been paid (that is when the child was between 15 and 16 years of age) without making provision for the payment of the remainder of the premiums, then, either the pol. would be reduced to £75 and relieved from payment of any more premiums, or, those already paid, amounting to £57 18s. 3d., would be returned to his representatives. The latter sum would be returned to the assurer if the child itself should die at that period.

If at any time after premiums for 3 years have been paid, the assurer and child being both alive, the

former should wish to be relieved from payment of any more prem., or to surrender the pol., the same option is allowed as if the assurer had died, viz., either to have the sum assured correspondingly reduced or to have the prem. paid returned,—subject, however, in the latter case to a deduction of 5 p.c. Continuing the example before mentioned, either a free pol. for £75 would in such a case be granted, or £54 4s. 2d. would be returned to the assurer.

The rate of prem. for ages and periods not included in the T. may be ascertained on application to the Actuary; and the prem. may be paid in one sum if desired.

The pol. is made payable to the assurer if the specified age for payment is under 21 years; but if the specified age be above 21 years, it may be made payable either to the assurer or to the child, as the former may elect when the endow. is effected.

The sum assured is payable within one week after satisfactory proof is furnished of the child having attained the specified age. No medical examination required.

Educational Endowments.—These have been treated of under EDUCATIONAL FUNDS.

Endowment Annuities.—It is difficult to say when the idea of Endowment Annu. was first originated. Some of the very earliest ins. asso. in this country embodied designs of this character. As, for instance, in some of the Widows' Funds, where an annu. was not promised to the widow, but to each of the children until they reached a certain age. It was one of the complaints made against the management of the *Equitable* So. in 1769, that while the Deed of that So. only contemplated the ins. of sums payable at death, the early directors had "assured an annuity or sum in gross to be paid to children of 7, 8, or 10 years old, when they are at the age of 21, if they live so long," which the opposition party in the board contended was the very reverse of the assu. contemplated in the Deed, "which are to pay a sum in case the party does not live, while this is to pay a sum if he does." And counsel advised that such a course was an "exercise of power by no means warranted." The So. therefore ceased to issue such pol., which might otherwise have become an important branch of bus. of the So.

The system of Endowment Annu. is a branch of Ins. bus. which appears to offer great scope for development. For daughters it is one of the best modes of provision. If they remain unmarried, the annu. forms a source of maintenance. If they marry, the annu. comes in most appropriately for "pin-money."

We now proceed to notice several of the schemes of this class already in force.

The *Britannia* Life, 1857, prepared about 1854 an elaborate scheme for Children's Endow. Annu. The special prosp. relating to this branch said:

The object contemplated is to afford to parents and others the means of having children educated and started in life; thus guarding against the difficulties and destitution in which children are too frequently involved by the premature death of those on whom they are dependent.

An attentive consideration of the plan will, it is confidently anticipated, convince parents, guardians, and friends, that although they may, with a present independent income, find it difficult, if not impossible, to accumulate a cap. sufficient for the support of their families after their decease, they may, by the exercise of a moderate degree of self-denial, secure a provision (in the shape of a temporary rev. annu.) for the maintenance and education of each of their surviving children: which annu. may afterwards be commuted for a sum of ready money, to assist the child's outset in life, whether in bus. or a profession, or on marriage.

For this purpose an extensive set of T. has been computed, exhibiting for every combination of ages of a father and son, and of a father and daughter, the quarterly prem. required to secure an annu. of £50, to commence at the father's death, and to be paid until the child (if a son) shall have completed his 21st year of age, or (if a daughter) her 25th year of age.

Although the T. have been framed for annu. of £50, any other amount of annu. (from £10 to £300) will be granted at proportionate rates of prem. They may be secured not only by fathers, but also by mothers, godfathers or godmothers, or any other relatives or friends. But in every case the person at whose death the annu. is to commence will be required to furnish satisfactory evidence in regard to his present and general state of health, in the same way as in an ordin. case of life assu.

Then follow the T., of which we can only give a summary, with an example of the prem. in each case:

A. Quarterly prem. required to secure an annu. of £50 to commence at the death of a father (or other relative or friend), and to be continued until a son (or other male nominee), whose present age is under 3 months, shall have completed his 21st year.—*Example:* A father aged 30 may secure for an infant son, less than 3 months old, an annu. of £50, to commence at the father's death, and to be continued until the son shall have completed his 21st year, by the quarterly payment of £1 9s. 5d.

B. Quarterly prem. required to obtain an annu. of a like character for a daughter or other female nominee, to continue until age 25.—*Example,* for £50 annu., quarterly prem. £1 15s.

C. Quarterly prem. required to secure an annu. of £50, to commence at the death of a father (or other relative or friend), and to be continued until a son (or other male nominee) shall have completed his 21st year.—*Examples:* 1. A father aged 30 may secure son aged six months an annu. of £50, to commence at his death, and be continued until the son shall have completed his 21st year, by the quarterly payment of £1 9s. 2. A father of the same age may secure a like annu. for a son aged 1 year, by the quarterly payment of £1 7s. 3d. 3. Ditto son aged 3 years, quarterly prem. £1 6s. 4. Ditto 5 years, quarterly payment £1 3s. 3d.

D. A like T. as to daughters, or other female nominees; the annu. to continue until age 25.—*Examples:* 1. Father aged 30, daughter aged 6 months, quarterly prem. £1 14s. 7d. 2. Father same age, daughter 1 year, prem. £1 14s. 3. Father 30, daughter aged 2, prem. £1 12s. 9d. 4. Father 30, daughter 3 years, prem. £1 11s. 6d. 5. Father 30, daughter 5, quarterly prem. £1 8s. 9d.

The commutation T. for the boys' and girls' annu. were given; and also T. for accumulation of money by way of deposit, at compound int., for a series of years.

The *National Life* adopted in 1873, as part of the scheme of which we have given the details under "Children's Endowments," T. for "Endow. Annu." as follows:

Ann. Prens. payable till age 21 to secure £100 payable on attaining each of the 18th, 19th, 20th, and 21st birthdays respectively.				Ann. Prens. payable till age 21 to secure £50 payable on attaining each of the 14th, 15th, 16th, and 17th birthdays, and £100 on attaining each of the 18th, 19th, 20th, and 21st birthdays respectively.			
Age next birthday.	Annual Premium.	Age next birthday.	Annual Premium.	Age next birthday.	Annual Premium.	Age next birthday.	Annual Premium.
£ s. d.		£ s. d.		£ s. d.		£ s. d.	
1	14 19 5	6	21 11 4	1	23 10 9	6	33 18 1
2	16 0 7	7	23 8 4	2	25 4 1	7	36 16 4
3	17 3 11	8	25 10 9	3	27 0 8	8	40 2 11
4	18 9 9	9	27 19 9	4	29 1 4	9	44 0 0
5	19 18 8	10	30 17 1	5	31 6 10	10	48 10 2

Each of these T. carries parti. in profits.

The conditions of Endowment Annu. are the same as those of endowments, except that in calculating the reduction to be made in the annuity or the amount of prem. to be returned on death or surrender, the payments of the annu. that may have been already made, if any, will be taken into account. In addition to the return of the prems. as above, the value of the bonuses, if any, attached to the pol., will in all cases be allowed.

These annu. may be made payable in equal or unequal instalments at different ages and for any period. No medical examination required.

Annuity of £100 p.a. for 7 Years.			
Age when Annu. commences.	Ann. Prens. payable till the Annu. expires.		
	The present age next birthday being		
	1 Year.	2 Years.	3 Years.
£ s. d.	£ s. d.	£ s. d.	£ s. d.
10	39 13 7	43 3 1	47 1 11
11	36 13 11	39 15 1	43 3 11
12	34 0 11	36 15 1	39 15 8
13	31 13 6	34 1 10	36 15 6
14	29 10 9	31 14 2	34 2 0
15	27 12 2	29 11 3	31 14 1
16	25 17 0	27 12 5	29 11 1
17	24 5 0	25 17 2	27 12 2
18	22 15 9	24 5 0	25 16 10
19	21 8 10	22 15 8	24 4 8

Endowment Pol. (adults).—It is difficult to say when endow. pol. payable on adult lives was first introduced. The *British Empire* (No. 1), 1839, appears to have been the first Co. to announce them. They are now issued by nearly all life offices, but special features are from time to time introduced.

In 1873 the *Pelican Life* introduced a plan of endow. pol. under the title of "Survivors' Bonus Ins.," of which the following is an outline:

By the well-known system of Endow. Ins., which secures to the assured the payment of a sum of money on attaining a specified age or dying previously, the public have had the advantage of combining in one transaction a provision for their families in the event of premature death, or—for themselves in after-life, if they live to receive the sum assured.

Hitherto, under the scheme of Endow. Ins., pol.-holders have not usually been admitted to a parti. in profits. The directors now propose to form a distinct branch for this class of ins., to be designated Survivors' Bonus Ins., and to accumulate the profits for the benefit of those who live to receive the amount of their pol.

By this plan the objection which is sometimes urged to the principle of Life Ins.—that it is unprofitable to those who live long, by reason of their having to pay for those who die early—is practically removed; because those who live to receive the amount of their pol. will not only get back all that they have paid, but, in all probability, a considerable sum in add.

The system also admits of a very useful application to marriage sett., whereby at a small add. ann. outlay the amount settled by ins. may become payable during the lifetime of husband and wife, and thus is secured to them an increase of income at a period of life when, perhaps, it is most needed.

It is equally applicable to the re-payments of loans granted for terms of years or for life—the debt being paid out of the pol. at the end of a fixed period—thus determining all further liability on the part of the borrower.

It commends itself to all persons in receipt of professional incomes who may be called upon at some period of their lives to relinquish a portion of their income on retirement.

It is eminently calculated to give stability to a vast variety of important transactions.

While to all persons it offers a profitable return for their investments, and secures the greatest benefits for the largest contributors.

It is intended that, at the expiration of five years from 1st January, 1874, and afterwards ann., a valuation shall be made of the pol. issued under this branch of the Co.'s bus., and the share of profit accruing to the assured shall be added to each pol. in proportion to the amount of their respective contributions. The representatives of those who die before attaining the stipulated age will receive only the sum originally insured—the contingent add. made to every such pol. being merged into the general fund for the benefit of the survivors.

Survivors' Bonus pol. granted for any number of years not less than 15. Surrender values not less than 50 p.c. of prems. paid—depending on duration of pol.

Ann. Prem. required to ins. £100, payable on a given Life attaining the age of 50, 55, 60, 65 or 70 years, or dying previously; with parti. in profits in the event of the Assured living to receive the amount of his pol.

Age.	50			55			60			65			70			Age.
	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	£	s.	d.	
20	3	6	2	2	17	6	2	11	5	2	7	4	2	4	8	20
21	3	8	8	2	19	4	2	12	10	2	8	6	2	5	8	21
22	3	11	4	3	1	4	2	14	5	2	9	10	2	6	9	22
23	3	14	4	3	3	6	2	16	1	2	11	2	2	7	11	23
24	3	17	7	3	5	10	2	17	10	2	12	7	2	9	2	24
25	4	1	1	3	8	3	2	19	9	2	14	2	2	10	6	25
26	4	4	10	3	10	11	3	1	9	2	15	9	2	11	10	26
27	4	9	0	3	13	10	3	3	11	2	17	5	2	13	4	27
28	4	13	6	3	16	11	3	6	2	2	19	3	2	14	10	28
29	4	18	3	4	0	1	3	8	6	3	1	0	2	16	3	29
30	5	3	5	4	3	5	3	10	10	3	2	9	2	17	9	30
31	5	9	2	4	7	0	3	13	3	3	4	8	2	19	3	31
32	5	15	6	4	10	11	3	16	0	3	6	8	3	0	10	32
33	6	2	8	4	15	3	3	18	11	3	8	10	3	2	9	33
34	6	10	9	5	0	1	4	2	1	3	11	2	3	4	5	34
35	7	0	0	5	5	6	4	5	6	3	13	8	3	6	5	35
36	...	...	...	5	11	3	4	9	3	3	16	4	3	8	6	36
37	...	...	...	5	17	9	4	13	5	3	19	3	3	10	9	37
38	...	...	...	6	5	1	4	17	10	4	2	10	3	13	2	38
39	...	...	...	6	13	3	5	2	9	4	5	8	3	15	8	39
40	...	...	...	7	2	6	5	8	0	4	9	3	3	18	4	40
41	...	...	...	...	...	...	5	13	9	4	12	11	4	1	0	41
42	...	...	...	...	...	...	6	0	0	4	16	10	4	3	10	42
43	...	...	...	...	...	...	6	7	0	5	1	1	4	6	10	43
44	...	...	...	...	...	...	6	14	9	5	5	9	4	10	1	44
45	...	...	...	...	...	...	7	3	7	5	10	11	4	13	7	45
46	...	...	...	...	...	...	...	...	...	5	16	7	4	17	6	46
47	...	...	...	...	...	...	...	...	...	6	3	0	5	1	8	47
48	...	...	...	...	...	...	...	...	...	6	10	3	5	6	5	48
49	...	...	...	...	...	...	...	...	...	6	18	8	5	11	9	49
50	...	...	...	...	...	...	...	...	...	7	8	4	5	17	10	50
51	...	...	...	...	...	...	...	...	...	...	...	...	6	4	7	51
52	...	...	...	...	...	...	...	...	...	...	...	...	6	12	2	52
53	...	...	...	...	...	...	...	...	...	...	...	...	7	0	6	53
54	...	...	...	...	...	...	...	...	...	...	...	...	7	9	11	54
55	...	...	...	...	...	...	...	...	...	...	...	...	8	0	6	55

In the U.S. the system of endowment pol. was a few years since greatly developed, resulting eventually in the "Ten prem. plan," which has since been adopted by several Brit. offices; and which, while it offers very considerable advantages to the insured, is open to some objection in view of the offices issuing them. [TEN PREM. PLAN.]

The *Positive* office has adopted the plan of making all its pol. payable on the termination of a certain fixed number of annual payments should death not have occurred previously. This was necessary to the working of its scheme.

The life offices that apply their profits to the lessening the number of payments of prem. at the end of the contract convert their life pol. into endow. pol. [LIFETIME POL.]

Marriage Endowments.—The more special schemes of this class will be spoken of in detail under MARRIAGE INS. They engaged the attention of N. Bernouilli in his work on *Probability*, pub. 1709. All endow. made payable to girls from ages 18 to 25 may really be regarded as Marriage Endow.

General.—Endow. Ins. is practised very largely on the Continent of Europe, especially in France. When the Prince Imperial was born in 1856, endow. ins. for a very large sum were effected on his life, to be payable at age 18—consequently on the 16 March, 1874, he became entitled to several millions of francs from the selected ins. offices.

At the ann. meeting of the *Gresham*, 1873, Mr. Curtis, the Act. of the Co., said:

The experience of almost every agent on the Continent is that the first proposal he receives is for an endow. In endowments is an element something approaching to selfishness, because a man only considers for himself what he shall receive after a certain time, and he comes to the Co. to invest his money in the mean time for him. But then a step further we come to Endow. Ins., in which selfishness gives place somewhat to the better feelings of a man, and he provides for his family in case of death, and for himself in case of life. Then a step further is the pure whole-life assu., which is assu. in its most perfect form, where a man entirely denies himself for the benefit of others.

In this gradual manner it is believed Life Insurance may be rendered popular even in France.

The professional reader will find an instructive paper on the Formula for Endow. Ins., from the pen of Mr. Jellicoe, in *Assu. Mag.*, vol. i. p. 332.

In vol. viii. of *Assu. Mag.* Mr. Sprague gives a "Demonstration of Formulæ for Value of an Endow. Assu."—referring therein to art. 233 in Gray's *T. of Life Contingencies*; and to Mr. P. Hardy's *New and General Notation*, and other authorities.

In vol. x. of *Assu. Mag.* is a letter by Mr. H. Ambrose Smith, "On a method of estimating the increase of rate put on Endow. Assu. to meet deterioration."

In vol. xvi. of *Assu. Mag.* Mr. W. Sutton's lectures to the pupils of the Inst. of Act. are given, and at p. 458 is an explanation of Endow. Ins. from an actuarial point of view, expressed with great clearness.

In the *Ins. Monitor* of N.Y., towards the end of 1873, Mr. J. L. Goodridge contributed a simple and direct formula which he had applied in practice in connexion with Joint Endow. Ins. This letter was reprinted in *Ins. Record*, 16 January, 1874, and elicited a very complete and useful reply from Mr. George King, in the following number of same Journ.

An interesting question arose in 1869 in the State of California regarding endow. pol. The case is that of *Briggs v. McCullough* [36 Cal. 542]. In that State there exists a stat. which provides that "no money, benefit, right, privilege, or immunity accruing, or in any manner whatever growing out of any life ins. on the life of the debtor," should be taken in execution. An unsuccessful attempt was made to show that an endow. pol. did not fall within the meaning of that Act. The Court, in pronouncing judgment, said:

It is urged that the pol. in this case is not an ins. on the life of McCullough in the sense of the stat., but is simply a covenant by the Co., that in consideration of a certain sum deposited by McCullough, the Co. will pay him at the expiration of 10 years, or sooner if he dies, a certain other stipulated sum, together with such dividends as his deposit shall in the mean time have earned. The term "life ins." is not alone applicable to an ins. for the whole term of one's life. On the contrary, it may be for a term of years, or until the assured shall arrive at a certain age. It is simply an undertaking, on the part of the insurer, that either at the death of the assured, whenever that event may occur, or on his death if it shall happen within a specified term, or before attaining a certain age, as the case may be, there shall be paid a stipulated sum. In either form it is, strictly speaking, an ins. on the life of the party. In this case the pol. was to become payable on the death of McCullough, provided he died within 10 years, and it is to that extent certainly an ins. on his life. It is an undertaking to pay the stipulated sum if he shall die within a specified term, which is of the very essence of life ins. The fact that the Co. is to pay the agreed sum at the expiration of 10 years, even though McCullough shall not have died in the mean time, does not divest it of its character of life ins. It is only a new and add. element in the contract not inconsistent with its other, which is its chief constituent part, to wit: the undertaking to pay on the death of the insured within the specified term. We think, therefore, that this was an assu. on the life of Mr. McCullough.

ENEKIA [ENEKIA] (from the Greek, *continuous*).—A term denoting *continued* action, and applied by Mason Good to continued fever, including the several species of inflammatory, typhus, and synochal fever. These were formerly called *continentes*, from their being supposed to be unattended by any change or relaxation whatever.—*Hoblyn*.

ENEMIES (from the Latin, *inimicus*).—Foreign powers who in a public capacity and in an hostile manner invade or make war against any kingdom or country, or against its commerce.

ENEMIES, INSURING THE SHIPS AND PROPERTY OF.—A good deal of controversy has from time to time arisen on the subject of insuring the ships and property of alien enemies; and the question is certainly one of no inconsiderable interest. We propose to review this question as briefly as the circumstances will admit; and certainly impartially.

It is important to point out that while in the past the subject of marine ins. has alone entered into the controversy, the question of fire ins. is, at least in principle, involved. Life ins. falls, we think, under another category; and will be more properly considered under WARFARE, ITS EFFECTS ON INS. CONTRACTS.

Some writers on the Civil Law are strong in the opinion that the insuring the property of enemies is in itself (and apart from the Stat. Law on the subject) entirely illegal, and a species of treason against the country; hence that all such contracts are void *ab initio*. No subject of any country, they contend, can have a right to ins. the losses of a national enemy, any more than they have the right to assist him by main force; as both ultimately tend to the same point—the support of the power intended to be overthrown. All States, at the commencement of hostilities, commence them in the hope of victory; but underwriters of the class in question must be held to reverse this order, and insure the hopes of defeat. Finally, as the intention of marine ins. is to render navigation and commerce more safely, easily, and conveniently carried on, it is plain that the reason of war altogether requires that the insuring of enemies' property be not allowed.

By the 25 Edward III. stat. 5, c. 2, A.D. 1350, it is declared, "which offences shall be adjudged treason," and therein is enumerated: "or if a man do levy war against our Lord the King, in his realm, or be adherent to the King's enemies in his realm, *giving to them aid and comfort in his realm, or elsewhere.*"

In the *Black Book of the Admiralty* there is recorded: "Item, lett inquiry be made about all those whoe correspond, sell, and buy with any of the enemies of our lord the king, without especiale lycense from the king or his admirall."

When the States General were at war with Spain in 1622, they proclaimed all ins. which were made before or after the edict by the inhabitants of the United Netherlands upon effects belonging to subjects of the King of Spain void; and inflicted a penalty upon those who should thereafter grant any such ins.

The Dutch, who are properly enough reputed to have seldom overlooked any advantages to themselves in trade, have always prohibited this kind of ins.

The Ins. Ordin. of *Stockholm* promulgated in 1667, and renewed and amended in 1750, says: Nothing belonging to a declared enemy of the kingdom shall be insured, under penalty of the ins. being void; and the delinquent to forfeit the amount of the sums which he had subscribed; one-half to go to the informer, and the other to the Chest of the Ins. Court estab. by us.

In 1747 Mr. Corby Morris pub. in pamph. form, *An Essay towards deciding the important question whether it be a national advantage to Britain to insure the Ships of her Enemies? addressed to the Right Hon. Henry Pelham, Esq.* He speaks herein of the national benefit of ins. "when it is rightly directed." The essay is very sprightly and well written. It condemns the practice, of which we are now speaking, on national grounds, contending that by means of these ins. we upheld the commerce of our enemies, which, under other circumstances, would have fallen to a considerable extent into our own hands.

In 1748 he returned to the charge in the following: *An Essay towards deciding the question whether Britain be permitted by right policy to ins. the Ships of her Enemies?*

Mr. Marshall, in his well-known work on Ins., says hereon:

This is a practice as to the policy of which, and its legality at Common Law, much doubt has been ascertained. We think, however, notwithstanding the deference due to Lord Mansfield, who held the opposite opinion, that Mr. Morris, in the tract now referred to, and others, have sufficiently shown the extreme impolicy of insuring enemies' property, and it would also appear to be clearly illegal. There is in fact no real difference between it and ins. against Brit. capture, which on the face of it would be illegal and void.

In 1748 there was enacted 21 Geo. II. c. 4—*An Act to Prohibit Assu. on Ships belonging to France, and on Merchandises or Effects laden thereon during the present War with France.* By it all such contracts were declared void; and a penalty of £500 was imposed upon any person making any contract thereafter.

In 1793 was enacted the 33 Geo. III. c. 27—*An Act more effectually to prevent, during the present War between Gt. Brit. and France, all traitorous Correspondence with, or Aid or Assistance being given to His Majesty's Enemies.* Sec. 4 of which declared that ins. made by persons resident in Gt. Brit. on ships belonging to France, or on arms, etc., going there, should be void, and the offenders liable to imprisonment.

In 1747 commenced in the pages of the *Gent. Mag.* one of those fine old controversies for which that periodical became so famous. It reduced itself into this form: "Whether it be right, advantageous, or even legal, to insure an enemy's ships or merchandizes in time of war or hostilities?" We could not, if we would, throw the warmth of feeling into it which characterized the original discussion; and, indeed, all we propose to do is to give a condensed outline of the arguments adduced on either side.

Those who maintained the *affirmative* of this question argued:—It is idle to make laws to prevent a trans. which may be carried on by means of a written correspondence; and that even if such prohibitions could put a stop to the practice, it would be highly impolitic to lay such a restraint on the commerce of ins. which produces a certain *profit*. That we ought to be cautious when any new regulation is proposed with respect to trade, especially a regulation which may perhaps strip us of the only branch of trade we enjoy almost unrivalled, and may very probably transfer it to our enemies. That there is a great deal more of the ins. bus. done in Eng. than in all Europe besides; and it is such a trade as must always leave a large bal. in ready money here in Eng., from the great profits made by the insurer, the profits made by the broker or office-keeper, the profits made by the factor, and the profits made by our dealers in exchange. That as soon as the French should hear of a prohibitory law being passed here, public offices will increase in France, and multitudes of rich men will there undertake the bus. That the French merchants will find an easy and secure access to ins. at home the very moment we exclude them from it in Eng. That if the prem. of ins. be so high that no profit the merchant can expect to make will answer it, and something more for his trouble and the use of his money, he will certainly resolve to send out no cargo at all. Therefore, if by the success of our squadrons and cruisers we should be able to raise the price of ins. upon French ships to such a height that no trade can bear it, we shall much more effectually and more safely put an end to French commerce, at least in their own ships, than we can do by prohibiting ins. on them; and if they should fall upon any way to carry on their commerce in neutral bottoms, this regulation can no way affect it. That if you cramp the bus. by prohibitions, you will extinguish the spirit here, and you may, you certainly will, raise it in France: so that in a few years the French might become the chief insurers in Europe.

On the other side it was contended as follows:—By the stat. 25 Edw. III., and by the constant practice since that time, it is declared high treason to *aid the King's enemies either within or without the realm*; and it is usual in His Majesty's declaration of war against France expressly to forbid us to hold any correspondence or communication with the subjects of the French king. *That without a cheap, easy, and secure access to ins., no nation can ever acquire or long preserve an extensive commerce*; and by preventing the French merchants meeting with any insurances here during a war, we shall very much *distress*, if not altogether ruin their commerce, and force many of them out of trade by the captures

we might make ; for, from experience, we know that an opinion prevails generally among the merchants in France that they *cannot depend upon any insurances but those they meet with in Eng.* That there is reason to suspect that some of our insurers may give intelligence to their correspondents in France, so far as they can learn, of the stations and course both of our cruisers and privateers. That we ought to take every method in our power for distressing the declared enemies of our country. That although, to evade these arguments, it is said that the French might resolve to carry on their commerce and supply their colonies by means of *neutral ships*, which might be all ins. in Eng., yet we might prohibit insurances being made upon *any ship* bound to or from any port in the French dominions. And with regard to their colonies, they could not be supplied even by means of neutral ships : for as their colonies can be supplied no way but by sea, if we should block them up by sea, in order to force them to surrender for want of subsistence, we should have a right, by the law of nations, at least to seize, if not confiscate, every neutral ship that attempted to carry them any provisions. That as our insurers insure at a cheaper rate, and in case of a loss pay more punctually, than the insurers of any other country are found to do, we shall by the same means recover the possession of this bus. whenever we please. That the practice gives the enemy all the advantages of the principle of ins., and defeats the first principle of war with respect to the insurers. That if commerce is the source of maritime power, and it is the first principle of war to weaken and destroy the power in your enemies, undoubtedly you are guilty of the greatest possible folly and madness if you render the commerce of your enemy secure, and give her new sources of maritime power. That, besides, if money is the soul of war, it may be more advantageous to your enemy to be paid ready money for ship and cargo when taken, by means of ins., than to wait the slow return of the merchants to whom the cargo was consigned, had it arrived in safety. That supposing your insurers to be considerable gainers, you must be sensible this must be a branch of commerce conducted on *false principles* ; for individuals would gain, while the nation suffered by having the hands of her enemy strengthened. That, however, if the naval power of the insurers is superior to that of the insured, it is most likely that the insurers would *lose* by this illicit commerce with the enemy ; and thus what the superior naval strength of the country gained on one side would be thrown away by the merchant insurers on the other. It further appears a matter of much uncertainty whether the insuring the ships and property be profitable even to the insurers, notwithstanding the opinion of Sir John Barnard was in the affirmative ; but it is pretty certain that if the expense of armaments, victualling, manning, wages, wear and tear, damage, etc., of men-of-war, privateers, letters of marque, with various other detriments and disadvantages, be taken into account, not to mention the temptation to give intelligence to the enemy, and to the commission of *frauds* by them, the balance on the whole cannot well be in favour of the *nation*.

Turning to the law as it now stands: It has been held since the decision of Lord Kenyon in *Brandon v. Nesbitt* in 1794 [which will be fully reported under WARFARE, ITS INFLUENCE ON CONTRACTS OF INS.], that ins. on the property of an enemy is repugnant to public policy, and consequently void ; nor can an Eng. ins., even although effected before the commencement of hostilities, cover a loss by Brit. capture. Where, however, a neutral subject has an interest in goods in common with one who was an alien enemy, and the former insured his part interest, it has been held that he was entitled to recover. If when the ins. is entered into, the insured is an alien, and after the loss he becomes an enemy, his right of action is only suspended in consequence of his personal *status* being changed, and it revives upon the return of peace. Where an enemy is allowed by royal licence to trade, ins. upon adventures within its protection are legalized. If the insured is domiciled in this country, the disability to sue in our Courts in his own name is also removed.—*Maude and Pollock*, 1853. [WARFARE, ITS INFLUENCE ON INS. CONTRACTS.]

ENFORCEMENT OF CONTRACT FOR POL. OF INS.—Where an agreement to issue a pol. has been made, and no fraudulent representation can be sustained, the office or underwriter may be compelled by a Court of Equity to issue the pol., even although the property shall have been subsequently destroyed ; but no action can be brought under any such pol. until the pol. itself has been obtained. There are several cases in the American books.

In *Carpenter v. Mut. Safety Ins. Co.*, 1846, it was *held*, an agreement to ins. may be specifically enforced ; and if a loss happen, payment may be compelled in equity.

In *Taylor v. Merchants' Ins. Co.*, 1850, it was *held*, a Court of Equity may compel the delivery of the pol. agreed and contracted for, either before or after the happening of the loss ; and being properly in that Court, after a loss, may proceed and give such final relief as the circumstances of the case demand.

In *Chase v. Washington Mut. Ins. Co.*, 1852, where a pol. had been executed, and delivered to an agent of the insurers, and then sent back for correction to the general agent of the Co., who tore off the names of president and sec. and seal of the Co., and afterwards, when requested to deliver the pol., refused to do so :—*Held*, that this gave the insured a right to come into a Court of Equity for relief.

In *Jones v. Provincial Ins. Co.* [Canada], 1858, where the prem. for an ins. had been paid, and an agreement for ins. made, but no pol. issued, and after loss, in an action, a

declaration stating that the defendants, in consideration of £20 paid to them as the prem. of ins. of £1500, on certain property described, promised to insure him against loss or damage by fire to the amount of £1500 until notified to the contrary, subject to the conditions of the pol.—that is, the pol. usually issued by the defendants in like cases; that the property was destroyed by fire, and although the plaintiff had done all things necessary on his part, yet the defendants had not paid him the sum insured, is bad, the action for non-payment of the money not being maintainable without a pol. under defendants' corp. seal. It seems, however (adds the reporter), that the ins. might have remedy at law in an action for not delivering the pol., or he might be relieved in equity. [16 Upper Canada, Q.B. 477.]

ENFRANCHISEMENT (from the French *franchise*, freedom or right).—In Law, the act of incorp. a person in any so. or body politic; as where one is made a citizen or free burgess of a town corporate. In feudal usage, a villein was said to be enfranchised when he was made free by his lord; and hence is derived the popular signification of the term. Regarding the Enfranchisement of Copyholds—see COPYHOLDS.

ENFRANCHISEMENT FUND.—Dr. Farr, in his Consols pamph., uses this term to designate the surplus fund of an ins. office guaranteeing repayment of mortgage advances. [MORTGAGE INS.]

ENFRANCHISEMENT OF COPYHOLDS.—See COPYHOLDS; also LEASES.

ENGELBRECHT, JOH. ANDR., pub. at Lubeck in 1790; *Corpus juris nautici: or a Collection of all the Sea Laws of the most known Commercial Nations of ancient and modern times, together with the Ins., Average, and other Ordin. connected with Maritime Law*. In add. to the Codes of Maritime Law before mentioned, this book contains the laws of Ham-burgh, Lubeck, and Bremen, the old Code of Riga, the now obsolete Danish Code of Frederick III., and the *Consolato del Mare*.—Lange. [SEA LAWS.]

ENGINEERS AND AGE LIFE OFFICE.—This Co. originated out of an amalg. of two offices in 1856, viz. the *Engineers, Masonic*, etc., and the *Age*. The amalg. Co. was trans. to the *English and Irish Church* in 1859. The hist. of each office before the union is given under the titles of the respective Cos.

ENGINEERS', CONTRACTORS', ARCHITECTS', AND BUILDERS' INS. AND GUAR. CO.—Projected in 1847, but no steps taken towards erecting the fabric beyond the foundation of prov. regis.

ENGINEERS, MASONIC, AND UNIVERSAL MUT. LIFE ASSU. SO.—Founded in 1848, with a guar. cap. of one hundred pounds, in shares of £2 10s.

The prosp. set forth the "especial advantages offered by this So.," from which we select the following:

Credit for half the prem. during the *whole of life*. The intro. of a second person in the place of the one orig. assured, if he wishes to withdraw, is allowed, if the party so introduced is of the same age as the orig. member, and in good health. When the ages differ, special arrangements may be made. Lives not considered perfectly admissible on ordin. terms assu. at rates of prem. corresponding with the extra risk.

Then the following:

It will hardly be credited that up to the present moment scarcely 1 in 300 of our vast pop. has taken advantage of the benefits derivable from life assu.

To enable *Engineers, Mechanics*, and others to provide (as far as human foresight can) against the contingencies of reverse of fortune, continued sickness, loss of sight, insanity, or any of the misfortunes to which men are liable, and by which their means of providing for their families are totally cut off, is the object of the directors, who are convinced that the above advantages have only to be brought prominently forward to secure to the office a continued and extensive share of bus., and to the assured indemnity against casualties. These classes, which are daily increasing in numbers and importance, are at present comparatively unrepresented in the field of assu.; to improve their position is a matter of the highest consequence, and no other method is either so easy or so legitimate as that which is pointed out by the system of life assu. adopted by this So. . . .

Prem. for non-members received by monthly instalments, an evening in each month being set apart for that purpose.

The first Sec. of the Co. was Fredk. Laurence, and Mr. A. Scratchley was Consulting Act. In 1852 Mr. Anthony Peck became Act. and Sec. In 1855 Mr. G. H. Robertson became Sec. In 1857 Mr. Edward Robinson succeeded to the office. The bus. of the Co. was small.

In 1849 the Co. absorbed the bus. of the *Tontine* (1846). In 1855 it took over the *Universal Provident* (1853); and in 1856 the *Age* (1851), after which it was called for a period the *Engineers and Age*. In 1858 the united bus. was trans. to the *English and Irish Church*, etc. (1853), which latter became in 1861 united with the *Brit. Nation*, and hence the pol. of these several offices eventually formed part of the bus. of the *European* (No. 2).

ENGLAND.—Under this head we propose to give a few details for reference and comparison; and that is all. The history of Ins. and its allied sciences in Eng. is scattered through the entire work, under appropriate heads. That Eng. has for the last three centuries been the home and centre of Ins., in its later developments, is abundantly clear. [INS. CHRONOLOGY.]

We shall have to speak of Eng. hereafter as forming part of Gt. Brit. [GT. BRIT.], and also again as forming part of the U.K. [UNITED KINGDOM.]

Regarding the hist. of Eng., it is made up almost entirely of wars, rebellions, treaties of

peace, and the intrigues of sovereigns, statesmen, and priests; while the social life and institutions of the people are deemed hardly worthy of notice; and ins. and other provid. asso. are never even referred to.

By 20 Geo. II. c. 42, s. 3 (1747), it is declared that in all cases where the kingdom of Eng. hath been or shall be mentioned in any Act of Parl., the same has been and shall from henceforth be deemed and taken to comprehend and include the dominion of Wales and the town of Berwick-upon-Tweed. We, in this work, mostly speak of Eng. as E. and W., to prevent the possibility of confusion.

The true area in conformity with these limits is 36,999,680 acres, or 57,812 square miles; of which 50,387 are in Eng. as orig. defined, and 7425 in Wales.

It has been remarked that it would be difficult, if not impossible, to point out a portion of the earth's surface, of equal extent, for which nature and art have done so much as for this portion of Gt. Brit. Situated near the centre of the temperate zone, where heat and cold are seldom in the extreme, and are, moreover, greatly modified by the seas which wash its shores, it enjoys a climate under which, if ordinary care is used, the most valuable productions of the vegetable kingdom are easily matured, and animal life also, not only in its lower grades, but in man himself, grows vigorously, and assumes its finest forms. In accordance with the excellence of the climate, are the beauty of the scenery and the fertility of the soil. It is true indeed that some districts are covered with rugged sterile mountains, or elevated tracts of barren moor, and that in others low monotonous flats occur, where much of the rain which falls becomes permanently stagnant, or slowly finds its way into sluggish streams, which are scarcely able to force their passage to the sea. These, however, are only exceptions, and even serve, by contrast, to render the general rule more conspicuous. After deducting all the land which can be considered absolutely waste, there still remain, out of the 57,812 square miles, no less than 51,000 available for cultivation, and consisting generally either of rural districts, where hill and valley, woods and rivers, magnificent domains, fields of corn, and meadows of richest verdure, unite in forming landscapes of unrivalled beauty, or of manufacturing districts covered with large and populous towns, in which all the great branches of manufacture and commerce have fixed their chosen seat.—*Imperial Gazetteer*.

The coast-line of Eng., as indeed of the entire U.K., forms a very remarkable feature in its geography. [COAST.]

The acknowledged greatness of Eng. has been variously accounted for; and it would be illogical to refer it to any single circumstance. Among its primary causes are, however, unquestionably to be classed the character and quality of the race of men—derived in happy proportions from a Scandinavian, Celtic, and Saxon stock—and bred mostly in pure air on the hills and grounds of moderate height supplied with running water, or on the fertile plains and valleys of an island pregnant with mineral wealth, and well placed for commerce on the frontier of the old and in the way to the new world. Englishmen have derived weapons in industry and war from the coal and iron mines; but their strength and courage in modern, as in ancient days, comes from other sources. Their skill, industry, science, religion, justice, freedom, sense of duty, love of country, and goodwill for other people, have all contributed to their success: they were bestowed on them by nature, circulate in their blood, and beat in their hearts. No race of men living in maremmas, marshes, deltas, low sea-coasts, low river-sides, could have acquired or wielded the power of this empire.—Dr. Farr, *Statist. Journ.*, vol. 15, p. 178.

It has been the subject of some comment by continental writers that the "Rolle of Olayron" does not make any mention of Eng. We think it may be granted that at the date of that compilation Eng. had no commerce, in the sense which that word now conveys; and hence it was hardly likely that it would be mentioned. [OLERON, LAWS OF.]

Although no regular regis. of deaths were kept before the Reformation, the chronicles show clearly enough that Eng. had been periodically devastated by famines and plagues from the earliest times. A large proportion of the pop. of the island has been more than once swept away by these visitations. The great plagues of the 6th and 7th centuries—which destroyed according to some estimates half the inhabitants of the Eastern Empire—extended to Britain. Besides the Black Death in the 14th century, the Sweating Sickness of the 16th century, and the Plagues of the 17th century, terminating in the Plague of 1665, described in detail by the historians—a long catalogue of famines and epidemics may be given, which, though briefly and imperfectly noticed in the chronicles, were perhaps not much less fatal.

After the Revolution the great plagues ceased; but the mort. was kept up by typhus, smallpox, influenza, and other zymotic diseases. The writings of Mead, Pringle, Lind, Blane, Price and Priestley—the sanatory improvements in the navy, the army, and the prisons—as well as the discovery of vaccination by Jenner—all conduced to the diffusion of the sound doctrines of public health, and had a practical effect, which, with the improved condition of the poorer classes, led to a greatly reduced mort. in the present century. Since 1816 the returns indicate a retrograde movement. The mort. has apparently increased. Influenza has been several times epidemic, and the Asiatic cholera reached Eng. and cut off several thousands of the inhabitants in 1832. It appeared and

prevailed again, as we have seen, with no mitigated violence, in 1849.—Reg.-Gen., *Special Cholera Rep.*, 1852.

The first mort. obs. applicable to the whole of E. and W. was that taken by Mr. Rickman, and pub. in his Rep. on the Census of 1831. It was based upon a return of the ages of the dying during the 18 years 1813–30; combined with one enumeration of the living made in the middle of 1821, at the census of that year. The returns of deaths were obtained under the Act of 1812. [PARISH REGISTERS.]

The most important defect in these materials was the omission of a considerable but uncertain number of deaths: the returns including those which had been entered in the parish regis. only. The omissions were from two causes: (1) from negligence in making returns; (2) burials in the burying-grounds of Dissenters, or others of a private character. Mr. Rickman estimated these joint omissions to be 8 p.c. of the whole. Other writers have estimated a higher per-centage. The census returns were also deficient—for the military and maritime pop. were not enumerated.

The results we now propose to place before our readers were deduced by Mr. T. R. Edmonds from Mr. Rickman's returns, and were pub. by the latter in the *Lancet*, 1836. Mr. Edmonds says:

In classifying the different counties of Eng., I have arranged them principally according to the rate of mort. of females between the ages of 15 and 60 years. But I have not separated the counties in juxtaposition, when the difference in the rate of mort. was inconsiderable. The mort. of males at the same interval of age would not serve as a good index to the healthfulness of a locality, unless we could abstract the detrimental effect of their occupations, leading to fatal accidents, or to loss of health. In many counties also the uncertain amount of the military and maritime pop. diminishes considerably the value of the apparent mort. of the male sex. Another valuable classification might be made, grounded on the mort. under the age of 15 years, but much preliminary labour would be requisite, in order to abstract the influence of large towns. For example, the mort. of Devon under the age of 5 years is nearly 25 p.c. greater than in Cornwall; and yet it is doubtful whether the climate of Devon is less favourable to infant life than that of Cornwall. The greater part of the excess may be accounted for by the accident of Cornwall not containing a large town like Plymouth; the mort. of infants in large towns being nearly twice as great as in the adjacent country. A classification more valuable and more complex than that which I now present may be made hereafter, when much local knowledge has been concentrated on the subject.

Then follows the Table (which will be found on page 508), on which Mr. Edmonds remarks:

The general harmony of the results in the foregoing T. appears to be interrupted by two instances only. In the counties of Durham and Kent, the mort. of males between 15 and 30 years of age is considerably higher than would be expected. In Durham the excess may be due to accidents in mines; in Kent the excess may be due to the deaths of boatmen, or to the omission of an excessive proportion of military and maritime pop. The extremely low mort. above the age of 60 years in the county of Warwick is a deceptive appearance consequent on the omission of the ages of the pop. of Birmingham, which constitutes one-third of the pop. of the entire county. The proportion of living above the age of 60 years is much less in large towns than in the country. If the ages of the inhabitants of Birmingham had been included in the general summary of the county, the proportion being above 60 would have been considerably less, and consequently the true mort. would have been considerably higher than the apparent. A deceptive appearance of a similar nature, though inferior in degree, exists in the counties of Gloucester and Northumberland, in consequence of the omission in the county summaries of the ages of the inhabitants of Bristol and Newcastle.

One of the most remarkable and unexpected results presented by the above T. is the fact that the mort. of females between the ages of 15 and 60 years is greater than that of males at the same period in all cases excepting Cornwall, Devon, and Wales. The difference would be still greater if allowance were made for deaths by accident, which are more numerous among males than among females. In Cornwall and Wales the apparent exception may be due to accidents in mining. In Devon the apparent exception may be due to deaths in naval and military hospitals, and to a very high proportion of unenumerated sailors and soldiers. The counties of Middlesex and Surrey are excluded from comparison because they are subject to the laws of mort. peculiar to large towns. I have already stated my reasons for believing that very little error can have arisen from the understatement of the ages of females. The possible error in comparing together the mort. of the two sexes, is to be diminished by the compensating effect of a similar though inferior disposition in males to understate their ages. In the above T. I have thought it preferable to give the apparent mort. of males between 15 and 60 years of age, without a necessary correction for the unenumerated military and maritime pop. It may, however, be acceptable to state that the two classes of counties in which the defects are most considerable, Kent, Surrey, Middlesex, Durham, Cumberland, Northumberland, North York, East York, and Devon, require the largest correction. Lancashire, Wales, Gloucester, Cornwall, Norfolk, Essex, Dorset, and Southampton require a similar correction. The apparent results for males from 15 to 30, and from 30 to 60, ought prob. to be diminished by the quantity of '09 in the first mentioned counties, and by '05 in those last mentioned—the reduction for all Eng. being about '06 at each of these two periods.

In the case of Cornwall, Devon, and Wales, there appears to be some ground for the conjecture that the relatively high mort. of the male to the female sex arises from orig. peculiarity in the constitution of the inhabitants. The proportion of male to female births in these districts differs very much from the proportion existing in the rest of the observed territory. In these districts, also, the mean age at which females attain the minimum mort. is the same as that for Wales; whilst in other districts the minimum is generally attained one year earlier by females than by males.

For the purpose of comparison we shall give in a later portion of the present art. T. showing the rate of mort. during the 10 years 1851–60.

In 1836 Mr. T. R. Edmonds, B.A., contributed to the *Lancet* a paper, *On the Law of Mort. in each County of England*. This consists of an elaborate examination and criticism of Mr. Rickman's returns; but we have already quoted it sufficiently for our present purposes. It will be noticed again under FEMALE LIFE; MORT., LAW OF; and other heads.

T. showing for each county of Eng. the ann. Deaths which occur for every 100 living, in each of 5 gradations of age; the counties being classified according to the mort. of females between the ages of 15 and 60 years.

	Wales and the 42 Counties.	MALES [without correction].						FEMALES.					
		All ages.	0-5	5-15	15-30	30-60	Above 60.	All ages.	0-5	5-15	15-30	30-60	Above 60.
	E. and W. ...	2'21						2'05					
1	{ Cornwall.....	1'82	3'59	'50	'79	1'41	7'63	1'67	3'12	'52	'67	1'10	7'18
	{ Devon.....	2'04	4'55	'53	'82	1'43	7'56	1'85	3'96	'54	'71	1'23	7'12
2	{ Wales.....	1'90	3'84	'53	'90	1'38	7'50	1'79	3'38	'52	'75	1'25	7'08
	{ Monmouth...	1'79	4'23	'49	'76	1'25	7'12	1'80	3'51	'49	'77	1'32	6'82
	{ Dorset.....	1'86	3'93	'47	'81	1'25	7'02	1'81	3'32	'51	'85	1'35	7'12
	{ Somerset.....	1'97	4'34	'56	'80	1'41	7'37	1'87	3'80	'57	'83	1'34	7'09
	{ Wilts.....	1'83	3'66	'49	'79	1'31	7'21	1'84	3'25	'53	'87	1'40	7'40
3	{ Gloucester...	1'91	4'24	'55	'83	1'48	6'80	1'76	3'55	'49	'83	1'35	6'50
	{ Hereford....	1'90	3'88	'46	'78	1'28	7'66	1'88	3'13	'51	'95	1'36	7'27
	{ Northumber-land.....	1'90	3'97	'59	'88	1'38	6'73	1'72	3'35	'54	'74	1'32	6'55
	{ Cumberland..	2'06	4'74	'61	'87	1'42	7'68	1'98	3'46	'61	'81	1'35	7'32
	{ Westmorland	1'97	3'87	'67	'87	1'30	7'54	2'03	3'49	'58	'93	1'47	7'85
4	{ North York ..	1'91	3'79	'53	'87	1'24	7'30	1'88	3'17	'55	'96	1'34	7'04
	{ Rutland.....	1'98	4'37	'44	'68	1'31	7'59	2'01	3'84	'55	'93	1'38	7'32
	{ Norfolk.....	2'08	5'20	'54	'84	1'24	7'21	1'97	4'40	'55	'88	1'31	7'02
	{ Suffolk.....	1'78	3'73	'45	'81	1'19	6'86	1'80	3'24	'49	'95	1'37	6'83
	{ Hertford.....	2'00	4'48	'54	'80	1'45	8'22	1'91	4'03	'54	'92	1'42	6'72
	{ Durham.....	2'38	5'34	'84	1'15	1'51	7'97	2'14	4'49	'72	'91	1'54	7'53
	{ East York...	2'17	5'48	'63	'94	1'38	7'59	1'98	4'66	'60	'89	1'41	7'17
5	{ West York...	2'09	5'18	'62	'88	1'41	7'38	1'98	4'57	'56	'93	1'48	7'32
	{ Leicester.....	2'04	5'21	'52	'71	1'33	7'26	1'95	4'38	'51	'91	1'41	7'30
	{ Lincoln.....	2'07	5'13	'56	'78	1'44	7'39	1'98	4'39	'58	'90	1'45	7'25
	{ Salop.....	2'08	4'56	'61	'98	1'52	7'45	1'98	3'91	'57	1'02	1'42	7'37
	{ Derby.....	1'94	4'38	'56	'92	1'29	7'38	1'91	3'72	'54	1'07	1'50	7'63
	{ Northampton	2'05	4'64	'55	'81	1'32	7'37	2'08	3'97	'63	1'10	1'52	7'49
	{ Huntingdon..	2'09	4'72	'57	'84	1'55	7'65	2'02	4'21	'63	1'00	1'52	7'22
	{ Essex.....	2'05	4'41	'56	'92	1'54	7'88	1'97	3'95	'51	1'06	1'53	7'29
6	{ Bedford.....	1'92	4'17	'58	'78	1'34	7'51	1'95	3'49	'65	'14	1'58	7'40
	{ Bucks.....	2'05	4'72	'53	'81	1'34	7'65	2'08	3'98	'63	1'10	1'54	7'96
	{ Oxford.....	2'05	4'97	'50	'78	1'36	7'82	2'04	4'14	'53	'99	1'47	7'82
	{ Berks.....	2'12	4'72	'53	'90	1'51	7'99	2'08	4'16	'55	1'05	1'53	7'69
	{ Southampton	2'10	4'43	'55	'99	1'53	7'88	1'91	3'77	'53	'96	1'52	7'68
	{ Sussex.....	1'87	3'93	'51	'91	1'35	7'16	1'79	3'21	'50	1'08	1'45	7'00
	{ Lancaster...	2'40	6'56	'71	1'04	1'64	7'66	2'24	5'78	'65	1'02	1'73	7'59
	{ Chester.....	2'32	5'57	'71	1'07	1'63	8'20	2'22	4'78	'68	1'11	1'76	8'22
	{ Nottingham..	2'27	6'38	'61	'90	1'41	7'18	2'16	5'37	'62	1'06	1'57	7'04
7	{ Stafford.....	2'34	5'98	'68	1'06	1'60	7'80	2'26	5'43	'62	1'07	1'58	7'41
	{ Warwick.....	2'26	6'12	'63	'90	1'63	6'16	2'08	5'29	'64	'93	1'53	6'03
	{ Worcester...	2'26	5'81	'65	'93	1'47	7'54	2'15	5'21	'62	1'04	1'51	7'21
	{ Cambridge..	2'34	5'96	'71	'90	1'63	7'85	2'23	5'08	'71	1'03	1'62	7'85
	{ Kent.....	2'54	5'60	'66	1'41	2'04	7'82	2'11	4'75	'61	1'02	1'63	7'69
8	{ Surrey.....	2'81	7'75	'71	1'05	2'12	9'81	2'41	6'40	'69	'92	1'77	8'78
	{ Middlesex...	3'03	8'34	'84	1'00	2'46	11'02	2'53	6'77	'78	'83	1'96	10'36

Note.—The numbers representing the mort. in 39 counties have been obtained by increasing the regis. deaths one-ninth part. In the case of Wales, Monmouth, Middlesex, and Surrey, the increase has been one-fourth part.

The Reg.-Gen. in his *Rep. on the Mort. of Cholera in Eng. 1848-9*, says :

The health of all parts of the kingdom is not equally bad. Some districts are infested by epidemics, constantly recurring; the people are immersed in an atmosphere that weakens their powers, troubles their functions, and shortens their lives. Other localities are so favourably circumstanced that great numbers attain old age in the enjoyment of all their faculties, and suffer rarely from epidemics. The variations in the mort. as seen in the T. which have been extracted and arranged from the 9th Ann. Rep. The rate of mort. is calculated on 2,436,648 deaths in the 7 years 1838-44; and on the pop. taken at the Census of 1841, in the middle of the period. On tracing over 324 sub-divisions of the country, the force of death in males and females of different ages, the most remarkable differences are discovered. Here of 1000 young children under 5 years of age 40 die, there 120 die ann.; here of 1000 men of mature age (35-45) 9 die, there 10 die yearly; of 1000 men of 45-55 years of age, 12 die in one district, 30 in another; 2 of the more advanced ages of the next decennium (55-65) 24 die ann. in one, 50 in another district; of 1000 females of all ages without distinction, 14 die ann. in three districts, 15 die in eighteen districts, 17 (or less) in forty-eight districts. And in strong contrast 23 in 1000 females die in twenty districts; 26 in 1000 in three districts; 27 in seven districts; 31 in two districts.

The mort. at all ages, without distinction, differs much less than the mort. of children, and less even than the mort. of men and women at the age 35 and upwards in the several parts of the country. The pop. from the age of 15 to 35 is unsettled; at that age the emigration of servants and artizans from the country to the towns takes place; and as consumption—the disease then most fatal—is slow in its course, its victims in many cases retreat from the towns to their parents' homes in the villages to die; and the death is regis. where it happens, not where the fatal disease began, so that, on comparison, it is told twice in favour of the towns; once in being withdrawn from the town regis., and a second time in being added to the country regis., to which it does not properly belong.

Independently of external causes, and by the force of a natural law, the mort. varies at different periods of life: so that the rate of dying in two mixed pop. may differ according to the varying proportions of children, young persons, or old people. The series of T. . . . shows the rate of mort. at 6 periods of life, under 5 years, at 10-15, 35-45, 45-55, 55-65, and 65-75. It is shown in the extreme cases, that when the gen. mort. is either high or low, the mort. at nearly all these ages is high or low; and a collection of the whole leaves little doubt on the question of the relative insalubrity of the various parts of the country.

Upon looking generally at the health of the pop., it will be found that people suffer most in the great town districts. [TOWN LIFE.] . . . The mort. is not increased equally at every age in these districts. And it varies considerably in the two sexes; the returns for childhood, manhood, and old age, males and females, conspire in proving the prevalence of general causes of insalubrity operating with different degrees of intensity, but with much greater force than in other parts of the country.

He (the Reg.-Gen.) enlarges upon the variations of mort. in the different districts of the country; but as we have dealt with this part of the subject under DISEASE, we need not present it here. He concludes:

England, according to the latest obs., is the healthiest country in the world, yet it is not easy to calculate in ordinary times her losses by diseases, from which parts of the country are free, and which the progress of social improvement and medical science may remove. How can the sufferings of a large part of the nation be estimated? How can the effects of disorderly morbid states on the passions and conduct of the people be weighed? How can the value of time wasted, of great plans perishing unexecuted, of works cut short by death, of men taken from the service of their country and mankind before their time be measured? If the loss is indefinite, its magnitude is unquestionable. We have now to describe its increase by the invasion of a foreign plague, which displayed a similar but not the same partiality, in the selection of its victims, as the ordin. endemics of the country.

In his 5th Ann. Rep. pub. 1843, the Reg.-Gen. says:

The mort. of Eng. varies from year to year, and the mort. of 1841 was rather lower than in previous years, so this T. [English Mort. T. No. 1] is only given as a near approximation to a mean T. I propose to pub. a series of life tables of this kind; and the extent of the obs. and of the time over which they are spread will in the end furnish a standard; any deviation from which will denote an improvement or deterioration in the national health.

The English Mort. T. (No. 1), and those which have followed it, will be found under separate art. ENGLISH MORT. T. In add. to these, we have numerous Mort. T. relating to different portions of E. and W., as well town as country: among these may be enumerated BRISTOL, CARLISLE, CHESTER, ESSEX, HOLY-CROSS, LIVERPOOL, MANCHESTER, NORTHAMPTON, NORWICH, and others given in this work. Beyond these also numerous obs. have been taken on the mort. of various parts of the country at various periods. These will be spoken of in some detail under MORT. OBS.

In his 6th Ann. Rep. pub. in 1845, the Reg.-Gen. again returns to the subject. He says: "On comparing the rate of mort. in Eng. with the mort. of France, Prussia, Austria, and Russia, it appears to be lower in this country than in either of the four States; but it must be remembered that Scotland and Ireland are not included . . . ;" and in support furnishes the following T.:

	Year.	pop.	Ann. Deaths.		Ann. Mort.	
			Years.	Nos.	p.c.	Living to 1 death.
England ..	1841	15,927,867	1838-42	346,905	2'207	45
France	1841	34,213,929	1838-42	816,840	2'397	42
Prussia	1840	14,928,501	1838-41	392,349	2'658	38
Austria	1840	21,571,594	1839-42	651,239	2'995	33
Russia	1842	49,525,420	1842	1,856,183	3'590	28

Note.—In the case of Russia a "correction" was made by way of deducting the still-born, which were not included in the other returns.

A belief in the increased duration of life in England has been entertained by Mr. Rickman, Mr. Griffith Davies, and others who have made vital statistics their study. We do not regard this as sufficiently estab. to be taken absolutely for granted. The whole subject will be discussed under LIFE, PROLONGATION OF.

The pop. of Eng. in 1861 was 20,066,224, and its density was 347 to the sq. mile, being second in this respect to any European country—Belgium being first. Including the whole of Gt. Britain and Ireland, the pop. was 29,321,288, and its density 253 to the sq. mile. In Ireland alone the density was 181 p. sq. mile. In Scotland 101. We shall give full details of pop. under UNITED KINGDOM.

From the Supplement to the 25th Rep. of Reg.-Gen., pub. 1864, we draw the following T., the first of which it will be interesting to compare with the preceding T. in this art. These T. are arranged according to the regis. districts of E. and W.

Average Ann. Rate of Mort. from all Causes at different Ages to 100 living during the 10 years 1851-60.

			Ages.													
Divisions.			All Ages.	Under 5 Years	5-	10-	15-	20-	25-	35-	45-	55-	65-	75-	85 and upw.	
	ENGLAND ...	M	2'305	7'243	'851	'488	'669	'883	'957	1'248	1'796	3'085	6'533	14'667	31'008	
	Divisions.	F	2'132	6'274	'842	'506	'738	'853	'992	1'215	1'520	2'701	5'866	13'434	28'956	
No. I.	London ...	M	2'570	8'311	'970	'452	'625	'831	1'050	1'629	2'468	4'243	8'522	17'189	31'441	
		F	2'182	7'295	'921	'415	'543	'648	'875	1'281	1'806	3'327	6'059	14'961	28'892	
II.	South Eastern Counties ...	M	2'022	5'487	'720	'405	'610	'933	1'037	1'230	1'604	2'673	5'858	13'942	30'787	
		F	1'889	4'669	'733	'506	'732	'885	'905	1'147	1'373	2'440	5'524	12'862	29'332	
III.	South Midland Counties ...	M	2'088	6'229	'690	'430	'555	'776	'870	1'110	1'501	2'603	5'990	13'006	31'715	
		F	2'001	5'246	'690	'523	'799	'910	'973	1'132	1'371	2'442	5'716	13'853	30'456	
IV.	Eastern Counties ...	M	2'100	6'084	'734	'457	'639	'915	'877	1'006	1'320	2'400	5'515	13'713	30'581	
		F	2'018	5'137	'772	'560	'851	'966	'999	1'132	1'275	2'219	4'904	12'339	28'815	
V.	South Western Counties ...	M	2'072	5'634	'724	'438	'559	'883	'932	1'101	1'532	2'738	5'854	13'747	30'959	
		F	1'936	4'867	'764	'494	'677	'798	'890	1'024	1'255	2'302	5'301	12'937	28'799	
VI.	West Midland Counties ...	M	2'320	7'556	'831	'474	'599	'760	'894	1'179	1'762	3'058	6'599	15'089	31'503	
		F	2'157	6'547	'800	'486	'702	'812	'950	1'160	1'419	2'630	5'760	13'800	28'884	
VII.	North Midland Counties ...	M	2'141	6'835	'763	'483	'618	'835	'791	'948	1'393	2'545	5'877	14'204	31'906	
		F	2'081	5'779	'764	'536	'844	'979	1'050	1'145	1'372	2'473	5'589	13'393	30'405	
VIII.	North Western Counties ...	M	2'674	9'366	1'054	'568	'792	'923	1'033	1'455	2'210	3'809	7'803	16'338	31'828	
		F	2'433	8'203	'1005	'538	'816	'908	1'114	1'437	1'950	3'386	7'101	14'878	29'986	
IX.	Yorkshire ...	M	2'381	7'965	'894	'522	'760	'868	'872	1'143	1'753	3'183	6'924	15'290	31'264	
		F	2'239	6'837	'879	'526	'843	'948	1'067	1'226	1'513	2'793	6'234	14'043	30'020	
X.	Northern Counties ...	M	2'251	6'938	'874	'528	'723	'883	'917	1'174	1'747	3'090	6'512	14'341	31'547	
		F	2'147	6'156	'853	'462	'666	'841	1'037	1'210	1'496	2'579	5'773	13'288	28'779	
XI.	Monmouthshire and Wales ...	M	2'193	6'194	'891	'606	'852	1'190	1'083	1'145	1'562	2'728	5'885	12'882	28'512	
		F	2'059	5'417	'923	'559	'768	'928	1'071	1'205	1'315	2'228	4'854	11'229	26'107	

The following T. shows the varying operation of the leading causes of death in the same divisions over the same period.

Average Ann. Rate of Mort. from different Causes to 100 living during the 10 years 1851-60.

Divisions.			Sex.	All Causes.	Causes of Death.											
					Typhus.	Cholera, Diarrhoea, and Dysentery.	Other Zymotic Diseases.	Cancer.	Phthisis.	Scrofula, Tubercles Mesenterica, and Hydrocephalus.	Disease of Brain.	Diseases of Heart and Dropsy.	Diseases of Lungs.	Diseases of Stomach and Liver.	Diseases of Kidneys.	Violent Deaths.	Other Causes.
No.	ENGLAND ...	M	2'305	'091	'114	'307	'020	'258	'091	'300	'118	'332	'101	'032	'110	'431
	Divisions.	F	2'132	'091	'103	'285	'043	'277	'070	'250	'131	'273	'100	'012	'038	'459
I.	London ...	M	2'570	'091	'164	'405	'024	'329	'130	'278	'127	'448	'099	'041	'109	'325
		F	2'182	'079	'142	'340	'058	'249	'091	'220	'124	'366	'101	'016	'045	'351
II.	South Eastern Counties ...	M	2'022	'088	'093	'239	'021	'247	'078	'255	'136	'269	'099	'038	'086	'373
		F	1'889	'090	'081	'222	'049	'201	'063	'224	'144	'218	'099	'014	'031	'393
III.	South Midland Counties ...	M	2'088	'098	'099	'229	'023	'220	'075	'246	'120	'273	'099	'031	'085	'490
		F	2'001	'109	'092	'214	'046	'268	'060	'216	'140	'222	'100	'010	'031	'493
IV.	Eastern Counties ...	M	2'100	'096	'093	'234	'019	'236	'082	'216	'111	'269	'093	'038	'076	'537
		F	2'018	'090	'080	'218	'050	'297	'065	'202	'118	'219	'090	'012	'028	'540
V.	South Western Counties ...	M	2'072	'081	'056	'256	'021	'232	'070	'234	'131	'297	'096	'030	'101	'467
		F	1'936	'087	'047	'231	'044	'250	'054	'202	'153	'232	'093	'010	'033	'500
VI.	West Midland Counties ...	M	2'320	'086	'118	'295	'018	'223	'082	'286	'124	'373	'106	'031	'125	'453
		F	2'157	'092	'108	'278	'043	'249	'064	'237	'141	'303	'104	'011	'045	'482
VII.	North Midland Counties ...	M	2'141	'083	'087	'272	'019	'214	'068	'338	'115	'264	'101	'031	'099	'450
		F	2'081	'092	'080	'268	'041	'287	'055	'278	'136	'217	'099	'010	'036	'482
VIII.	North Western Counties ...	M	2'674	'100	'170	'393	'015	'299	'110	'361	'108	'417	'106	'026	'133	'436
		F	2'433	'098	'151	'361	'034	'334	'079	'291	'120	'352	'105	'012	'046	'505
IX.	Yorkshire ...	M	2'381	'087	'119	'315	'018	'247	'099	'402	'110	'321	'110	'030	'098	'425
		F	2'239	'086	'114	'308	'018	'287	'078	'322	'126	'264	'112	'010	'036	'458
X.	Northern Counties ...	M	2'251	'081	'115	'307	'019	'221	'117	'263	'126	'263	'106	'028	'143	'462
		F	2'147	'079	'116	'301	'038	'253	'097	'226	'132	'226	'112	'011	'038	'518
XI.	Monmouthshire and Wales ...	M	2'193	'106	'050	'284	'018	'298	'058	'359	'083	'253	'083	'022	'139	'440
		F	2'059	'098	'043	'275	'030	'320	'043	'308	'106	'191	'073	'006	'035	'531

Dr. Farr said in 1866 : Eng. the centre of the healthiest district in Europe ; where people live on an average 35, 40, or 50 years, and where a fuller life is enjoyed.

The rate of mort. is 22 [p. 1000]. The rate is nearly the same in Scotland. In Ireland, as far as official documents go, it is 17 ; but making allowance for deficient regis., it may be the same as in Scotland.

The following is a summary of the mort. and pop. statistics compiled in 1868 :—In

Eng. there is 1 birth to every 30 persons living, 1 marriage to every 122 persons living, and 1 death to every 45 persons living. According to the marriage regis. 22 p.c. of the men and 30 p.c. of the women who marry are unable to write. The proportion of persons marrying under age is 7 p.c. among males, and 20 p.c. among females. About 14 p.c. of the men who marry are widowers, and 9 p.c. of the women who marry are widows. Boys are born in the proportion of 104 to every 100 girls born. Males experience a higher rate of mort. than females, so that if there were no emigration, or if the men and women emigrated in pairs, the numbers would be reduced in the end very nearly to an equilibrium, and the men and women living of all ages would be in the proportion of 100,029 to 100,000; emigration, however, has upset this hypothesis, and the census declares the majority to be in favour of the women,—that is, there are only 95 men to every 100 women, the mean male death-rate in this country p. 100,000 of pop. in 29 years being 2332, against a female rate of 2154, so that to every 100 deaths of females there are 103 deaths of males, or of equal numbers living the number of male deaths to every 100 deaths of females is 108. The rate of increase of pop. is gradually decreasing; thus, it was 18 p.c. in the 10 years 1811–21; in the 10 years 1851–61 it was only 12 p.c., or 1'141 p.c. p.a., at which rate the pop. of England would double itself in 61 years. The average age at which marriages are first contracted in Eng.—that is, excluding marriages of widowers and widows—is 25'5 years for males, and 24'3 years for females. The average age of husbands is 43'0 years, and of wives 40'5 years; the husband being 2'5 years older than the wife. To every 100 births there are six children born out of wedlock ann. Out of every 100 children born 26 never see their 5th birthday. The births in Eng. are regis. in the greatest proportions in the first two quarters of the year; the deaths are most frequent in the first quarter of the year; the marriages are most numerous in the last quarter of the year. The mean afterlifetime or expec. of life of males and females respectively, at birth, is 39'9 years and 41'9 years; at 5 years of age it is rather more—49'8 years and 50'3 years; at 20 years of age it is 39'5 and 40'3 years; at 30 it is 32'8 and 33'8 years; at 40 it is 26'1 and 27'3 years; and at 50 it is 19'5 and 20'8 years. The mean age at death for males and females respectively—with which the expec. of life should never be confounded—is, at birth, 39'9 years and 41'9 years; at 5 years of age it is 54'7 and 53'3 years; at 20 years of age it is 59'5 and 60'3 years; at 30 it is 62'8 and 63'8 years; at 40 it is 66'1 and 67'3 years; and at 50 it is 69'5 and 70'8 years.

In the year 1870 the deaths regis. in Eng. were 515,329, showing an increase of 20,501 upon those returned in the three preceding years. After making due allowance for increase of pop., the death-rate in the four years 1867–8–9–70 was successively 21'8, 22'0, 22'3, and 22'9 p. 1000 persons living; in the 33 years 1838–70 the ann. rate averaged 22'4, and ranged between 20'5 the lowest in 1856 and 25'1 in 1849, when cholera was severely epidemic. The 515,329 deaths in 1870 included 265,586 or 51'5 p.c. of males, and 249,743 or 48'5 p.c. of females; these proportions were identical with those which prevailed in the previous year. The deaths of males in 1870 were to the deaths of females as 106 to 100. The rate of mort. among males was equal to 24'3 p. 1000, while among females it did not exceed 21'6; therefore of equal numbers living the number of male deaths in the year to each 100 deaths of females were 112. In the 33 years 1838–70 this proportion averaged 109, and since 1849 has steadily increased from 105 to the 112 shown in each of the four years 1867–70. This may be, and prob. is, wholly or in part, due to more complete regis.

ENGLAND, E., was underwriter of *London and Caledonian Marine* from its commencement in 1864 to its close in 1868.

ENGLAND (THE) LIFE AND INVALID HAZARD ASSU. Co.—Projected in 1845, with an authorized cap. of £1,000,000, in 20,000 shares of £50. The prosp. said:

The plan upon which this Co. is based has been adopted, after the most minute and careful investigation of the operations of those above named, and the promoters contemplate that they will be enabled to secure advantages through this Co. which no other has yet offered. One deviating in various degrees from a state of full health to a precarious and even dangerous condition.

Most of the L. assu. cos. refuse to take risks on persons unless in full health. Hence many are shut out from the ability to prepare for the support or assistance of dependents. Yet F. offices will ins. against damage by fire, and underwriters will ins. against losses from the dangers of the seas, under any risk, such ins. being made at premiums proportionate to the risk.

This Co. will adopt the same principles, by assuring such risks at fair remunerating prems., for which purpose medical superintendents of first-rate talent are to be appointed in the principal towns in the U. K. and in the Colonies, to aid the Co. with their valuable advice and assistance in each individual case; and it is intended that such medical superintendents shall be proprietors of not less than 5 shares of the cap. stock of the Co.

The Co. will have separate tables for effecting assu. on lives in full health: for hazardous, double, treble, and quadruple hazardous; and also for effecting assu. for certain periods, on lives which may be considered almost hopeless.

In numerous cases, even under the last-named position, the effecting such assu. will be a great object to the parties. Supposing, for instance, the person whose life is proposed to be assured, should be entitled to an estate, should he attain a certain age, shortly to arrive, or to an annuity or the like, should he live to a certain day, it would be highly important to his friends to pay a liberal prem. to assure his surviving till the arrival of that period. There are innumerable cases ineligible to be assu. by other offices where the risk is little more than imaginary, and such persons would gladly pay an increased prem. These profitable risks, therefore, will form the peculiar objects of this Co. *Persons engaged in dangerous undertakings, engineers, and persons undertaking long voyages, also will be assured by this inst.*

It was further announced :

One-half the shares will be allotted to gentlemen of the medical and legal professions, and to the clergy throughout the kingdom, whom the Co. wish to interest in its prosperity.

The rates for ordin. ins. were based on the *Experience* T. No. 1.

In a circular which accompanied the prosp., addressed to members of the medical profession, it was stated :

A fee will be paid in each case in which assu. is effected (*as will also the charges for subsequent professional attendance on the assured*), to the medical gentlemen appointed, *such charges not to exceed one-third of the ann. prem.*, and the same will be debited against the pol.

The medical profession, however, did not swallow the tempting bait ; and the project, in the year after its birth, died of "impecuniosity"—a disease not included in the ordinary classifications, yet sadly fatal among young ins. asso.

The promoter of the Co. was "Rees Price, M.D., Tyne Hall, Gt. Ilford, Essex," who became "Resident Director and Sup. of the Medical Depart.;" while Mr. A. R. Bunn was Sec. *pro tem*. The board of directors was highly respectable.

ENGLAND MUTUAL FIRE INS. SO.—This Co. was projected in 1850 by Mr. John Macgregor, M.P., but it did not go beyond prov. regis.

ENGLAND, SEA LAWS OF.—See SEA LAWS.

ENGLAND AND FRANCE INTERNATIONAL INS. CO.—Projected in Lond. in 1855, but afterwards took the name of *Old England Life Office*.

ENGLEBACH, F. A., was Act. of *Alliance* F. and L. from 1849 ; and Sec. and Act. from 1853 to 1862, when he resigned the position of Sec., and remained Actuary down to 1866. He was also Actuary of the *National Reversionary* from 1849 to 1866.

ENGLEBACH, HAROLD (son of the preceding), Sec. of *National* Ins. Co. of Ireland since 1870. He was trained to the bus. in the *Alliance*.

ENGLISH ASSU. CO.—Founded in 1867 for F. and L. Ins., with an authorized cap. of £500,000, in 25,000 shares of £20, and without the protection of the Lim. Liability Law. The immediate circumstance which appeared to lead to the founding of the Co. was a secession of a number of the directors and of the Man. of the Lond. branch of the *Queen*. The founder of the Co. was Mr. J. E. Leyland. The prosp. contained one or two passages of historic interest :

The success which has generally attended prudently man. F. and L. assu. cos., the large amount of property which still remains uninsured, and the small proportion of the general pop. which has availed itself of the advantages of L. assu., justify the formation of this Co. To show the extent of the field open in the fire department, it may be stated that several of the offices have had to enter into re-insurance arrangements with foreign fire cos., in order to be relieved of their surplus bus. ; and also that some of the foreign fire cos. have recently opened branch estab. in Lond.

The fire offices having recently raised the rates of prem. upon certain classes of property, and taken more decided action as regards incendiary fires, and for the more economical settlement of losses ; together with the results likely to follow the Rep. of the Special Committee of the House of Commons, recommending to the Legislature certain measures for the better protection of property from fire ; the classification and storage of goods ; and a judicial investigation into the causes of fires [unfortunately not yet carried into effect]—render the present a suitable opportunity for the estab. of this Co.

As regards the principle upon which the fire bus. will be conducted, viz. tariff or non-tariff, the directors, after the most careful consideration, decided to commence operations in connexion with the tariff offices.

The Mem. of the Asso. dated 20 Sept. 1867, contained powers for carrying on Marine Ins., Health Ins., Transport Ins. ; but these branches of bus. were never entered upon.

The Art. of Asso. contained (*inter alia*) the following :

17. Every pol. granted by and every contract entered into by or on the part of the Co. shall contain a special provision for limiting the liability of every shareholder to the amount of his share from time to time not paid up, and also limiting the liability of the Co., in the whole to the extent of so much of their coporate assets as from time to time shall be duly applicable for the satisfaction of their corp. liabilities thereunder, *having regard to the particular branch of their bus.—that is to say, fire, life, marine, or other branch as the case may be to which such pol. or contract may relate, and the particular funds set apart and appropriated under the provisions of these art. to answer claims arising from such pol. or contract.* [LIABILITY, LIMITATION OF.]

23. It shall and may be lawful for the directors to make assu. on the lives of persons afflicted with chronic complaints and other disorders not attendant with immediate danger, and also on the lives of persons in other cases of risk to which the regular assu. T. of the Co. may not extend, and also to make assu. on any property, specially hazardous, against the risk of loss or damage by fire, or otherwise—the terms and conditions and prem. in every such case respectively to be regulated so as in the judgment of the board to afford ample compensation for the increased risk.

The different funds to be created were—(1) cap. account ; (2) fire ins. fund ; (3) life accumulation fund ; (4) the annu. fund ; (5) reserve fund. The Co. started with a subs. cap. of £26,000.

The board of the Co. was most respectably constituted. The Consulting Act. was Mr. T. B. Sprague [he afterwards retired], and Mr. J. E. Leyland was Man.

The Co. was at an early period unfortunate in regard to one or two heavy fire losses. In Aug. 1869, a negociation for trans. the bus. of the Co. to the *United Ports and General* was entered upon, but not concluded. In 1870 the F. bus. was trans. to the *Monarch* (1869), and the L. bus. to the *North America* L., of which Mr. Leyland became Man. in Eng. On the 2nd Dec. the Co. passed into voluntary liq., all its liabilities being paid in full.

ENGLISH BENEFIT SOS. T., otherwise Ansell's T.—See SICKNESS.

ENGLISH, CAMBRIAN, AND GENERAL LIFE ASSU., ENDOW., LOAN, ANNU., AND REV. INT. CO.—Projected in 1845, with an authorized cap. of £500,000, in 100,000 shares of £50. The orig. prosp. said :

Nearly a century and a half has elapsed since a portion, though a small one, of the prudent part of mankind, began to feel the necessity of adopting a system of L. assu. so as to avert those calamities which premature demise might occasion to their families. This led to the formation of the *Amicable So.*

Besides the primary features of L. assu., the system is applicable to nearly all the pecuniary transactions of life; creditors may assure the lives of debtors (thus securing themselves against risk from unexpected death)—all persons enjoying property contingent on the lives of others can protect themselves from loss—endowments may be provided for widows and children; in short, its benefits are too numerous to be inserted within the limits of a prosp.

Notwithstanding the advantages of the system, it is not a little surprising how few persons have availed themselves of L. assu.: indeed the best authenticated data prove that not 100,000 lives are assu. in the whole of the U.K. . . .

It is, however, worthy of obs., that notwithstanding the advantages of the system of L. assu. have been extended in so small a degree, in comparison with the amount of the pop. of the U. K., yet Eng. has many offices for such sos., and Scotland, considering its pop., stands pre-eminent in its advocacy of such estab.; but in that important part of the kingdom, the Principality of Wales, L. assu. is but little known; it is therefore contemplated, as one of the main features of this Co., to give its attention to that part of the country, by intro. the principle to a people possessing a natural desire to provide for their families by active industry; and it is to be hoped that by the cordial co-operation of the wealthy portion of the Principality in forwarding these views, their more humble countrymen may be induced from such an example to set apart a portion of their savings quarterly or otherwise, in the laudable object of making that provision for their families, which in the case of early demise these inst. so certainly afford.

The other features of the Co. were "half credit," the other half to remain "subject to payment at the convenience of the assu." Gratuitous medical advice to persons ins. for £500 and upwards. Liberal conditions as to foreign residence and travel.

The only names on the prosp. were "Messrs. Dunn and Dobie, Solicitors, 2, Raymond's Buildings, Gray's Inn." This project appears afterwards to have become or merged into the *English and Cambrian* (1850).

ENGLISH AND CAMBRIAN INS. CO. (NO. 1).—Founded in 1825, and in 1827 ceased to carry on bus. It appears indeed only to have been a branch of the *Aegis Fire and Dilapidation*, and *English and Cambrian Life Co.*—but the Life branch of the Co. was sometimes advertised separately under the above title. The Act. of the branch was James Mitchell, LL.D., and the Sec. William Dudman.

ENGLISH AND CAMBRIAN LIFE ASSU. SO., "FOR LIFE ANNU. AND LOANS, AND FOR PERPETUATING COPYHOLD AND LEASEHOLD PROPERTY."—Founded in 1850, with an authorized cap. of £150,000, in 12,000 shares of £12 10s. The orig. prosp. said :

The *E. and C. Assu. So.* has been estab. with a view of rendering increased facilities for the transaction of L. assu. and other bus. of great practical utility to all classes of the community, and particularly of spreading the advantages of L. assu. in all its various appliances amongst the "industrial classes," by taking the payments weekly or otherwise.

The "distinctive features" of the Co. were declared to be : "pol. from £20 to £5000 granted on every known principle of Life Assu.;" "pol. once issued never disputed;" "pol. of 5 years' standing not void on account of suicide;" "declined lives accepted at equitable rates;" "special T. to suit the working classes." Then :

This So., with a view of supplying a desideratum long wanted, grants assu. of capital sums, by which the owners of leasehold, copyhold, and lifehold estates, may provide at any given time funds for effecting repairs under repairing leases; for payments in respect of copyholds, for heriots, or renewal fines on admission and on failure of lives; and for the purchase of other property in lieu of that to be surrendered under terminating interests.

The Man. of the Co. was Mr. C. W. Bevan; the Sec., Mr. George Angus; the Con. Act., Mr. Woolhouse. Mr. James Parker was Inspector of Agencies. In 1852 Mr. W. H. Kingsford became Man. The Co. had a branch at Norwich.

The Co. had power under its D. of Sett. to transact Fire bus. It did so for a short period, making one quarterly return of duty. The rep. of the Co. presented to the gen. meeting in 1851 said :

The directors, under the powers contained in their D. of Sett., deemed it prudent in Dec. last to suspend the fire department of the So.'s bus.; and accordingly the risks (with the exception of 2) were trans. to a highly respectable office for which the So. is still liable (*sic*). When the proper period arrives, the directors will ask the sanction of the shareholders to resume this department of bus., of which due notice will be given.

The bus. of the Co. was very small, and the expenses of foundation and management very heavy. In 1856 the *Commercial Life* was founded, and the bus. of the Co. became grafted on to it. [COMMERCIAL LIFE.]

ENGLISH AND COLONIAL LIFE.—This Co. was projected in 1852, but did not proceed. Its connexion was merged into the *English and Foreign*.

ENGLISH CO. FOR INS. CHILDREN'S FORTUNES.—This scheme was set on foot in June, 1720, and all we know concerning it is contained in the following announcement, which appeared in the *Daily Post* on 21st of that month :

These are to give notice that the *English Co. for Ins. Children's Fortunes* will open their books this day, the 21st inst., at a clock, at the Widow Ive's Coffee House in Bartholomew Lane, behind the Royal Exchange, where a gentleman of unquestion'd credit will attend to take in subs. and give his note, payable on demand for the contribution money. The design being very reasonable and very advantageous to all that are any way concern'd in it (as is more fully express'd in the printed proposals to be seen at the above-said coffee-house, and will appear still more plainly by calculation), and as it has been suitably applauded by many persons of great judgment, the undertakers make no doubt of having their books soon full, but expect none will subscribe that do not resolve to pursue the intent of a project which has every good claim to the publick encouragement, as being beneficial not only to those engag'd in it, but to the nation in general.

ENGLISH AND FOREIGN (LIFE AND FIRE) ASSU., ANNU., ENDOW., AND MORTGAGORS' PROTECTION SO.—Founded in 1852 (as the *English and Colonial*), with an authorized cap. of £250,000, in 50,000 shares of £5. The Co. was in the first instance regis. under the title of the *Brit. and Colonial*. The prosp. issued under its later title said :

Numerous as L. assu. cos. are, there is still ground to be occupied by others, adapting the principles of L. assu. to the ever-varying wants and circumstances of the community. This Co., availing itself of the experience of those cos. which have preceded it, and of the most improved data for determining the laws of mort., enters the wide field of honourable competition, and proposes, by combining in one inst. several objects more or less dependent on each other, greatly to economize expenditure, and thus to insure pecuniary advantages as well as the guarantee of an efficient administration to all who transact bus. with it. It combines the operations of a L. assu. office adapted to the necessities and convenience of all classes;—of a *savings bank*, with a higher rate of int. and a better security than those asso. can give;—of a *Freehold Land, Building, and Investment So.*, with all the assured benefits of such asso. based upon a large cap. and a responsible proprietary; and without any uncertainty as to realizing the shares, in consequence of inadequate man. or of casual losses;—of a *Monetary Advance So.*, conducting its bus. with caution, and making loans at a moderate rate of int.;—and of a *Mortgagors' Protection So.*, affording to a class of persons more exposed, perhaps, than any other to exaction and fraud, the aid and protection given to bankers, merchants, and tradesmen, by their several protection societies.

By such a combination of bus., each branch being quite compatible with all the rest, and deriving its means of operation partly from them, a much wider field is efficiently occupied than has hitherto been attempted, and at a greatly reduced cost to the public.

There were one or two other special features in the working details of the Co. Thus: "Officers in the army and navy are assu. upon the same terms as civilians." "One life may be substituted for another, or one mode of paying the prems. for another, at the pleasure of the pol.-holder." Pol. indisputable, "except in cases of intentional fraud;" Deposit Ins.; and Building So. Ins. Then :

No medical fee is charged, and proposers may be examined, on details, by their own medical attendant, instead of the medical director of the Co., if that be preferred. To females especially this is a great boon, in relief from the very disagreeable ordeal through which those desirous of effecting a life assu. usually have to pass.

The Managing Director of the Co. was Mr. William Carpenter; the Con. Act. Mr. Charles G. Shaw; Assistant Sec., Mr. Josiah J. Merriman. Mr. Lewis C. Hertslett afterwards became Sec.

The Co. had power to transact Fire bus., but never appears to have entered upon it.

In 1854 the Co. took over the bus. of the *Marylebone and General* (1853); and in 1857 the entire bus. was trans. to the *National Alliance*.

ENGLISH AND FRENCH ALLIANCE FIRE AND LIFE.—A Co. under this title was projected in London in 1854 by Mr. Frederick Lawrence, Actuary. It did not mature.

ENGLISH GENTRY.—In 1846 Dr. W. A. Guy, M.B. Cantab, read before the Statistical So. a paper: *On the Duration of Life among the English Gentry, with add. obs. on the Duration of Life among the Aristocracy*. The T. he furnishes in this paper we propose to give under PEERAGE, MORT. OF.

ENGLISH HEALTHY DISTRICTS LIFE T.—This will be given under ENGLISH LIFE T., HEALTHY DISTRICTS.

ENGLISH AND IRISH CHURCH AND UNIVERSITY ASSU. SO.—Founded in 1853, with an authorized cap. of £100,000, in 20,000 shares of £5. These shares were to be allotted to the "clergy and influential lay members." The prosp. said: "A mutually advantageous connexion with the *Friend of the Clergy* So. has been effected, and the directors of this So. are members also of that important inst." In return, 20 p.c. of the profits of this So. were to be applied to furthering the objects of that So.

The bus. of the Co. was:—1. To grant every variety of pure Life Assu., with the important feature of permitting pol. to be trans. from one life to another on a plan peculiar to this office. 2. To unite in one pol. the advantages of *Life and Fidelity* Assu., by a valuable principle of combination. 3. To estab. an improved system of *provision for old age*, or of incapacity from *accident or disease*; and *annu.* increasing with the share of *profits*, the rates being calculated from extensive data, specially obtained and arranged for the use of this office. 4. Pol. will also be granted for the assu. of persons against *death*, injury or affliction by *accident*, or other contingency. 5. Also for the guarantee of *loans* on collateral and other security. In the L. Department "a diminution of half a year is made on the amount of prems. when persons assure within 6 months of their last birthday." "Invalid lives not labouring under declared organic diseases may effect pol. at equitable rates."

In the "Investment Department" it was stated :

Loans are made by this So. upon personal or real security, and advances are made to assurers, to enable them to meet the expenses of educating their children at the universities, or to start them in professions, etc. Clergymen and others can also obtain advances to assist them either in purchasing advowsons, or to make repairs in parsonage houses and other tenements on Church property.

The conditions as to foreign residence were very liberal. 60 p.c. of the profits were to be allocated every 5 years. Half-credit prems. Then a Philanthropic Fund :

Should the assured become so reduced in circumstances as to be unable to continue the payment of his prems., provided the pol. shall have attained a sufficient value, the directors have power, on application being made to them, to supply the remaining ann. prems. from a charitable fund formed by setting aside *one-tenth* of the profits that may from time to time fall to the share of the assured.

Again :

There are other descriptions of risk undertaken by this asso., which, from their importance and utility, cannot be too much appreciated, or too universally adopted. The strongest man may become

weak; the soundest intellect may become impaired; the safest person may become unsound; this is the lot of humanity, hourly and daily observed in every man's experience. Against these misfortunes and afflictions the directors, at moderate rates, offer provisions, by granting assu. against *paralysis, blindness, insanity*, accidents, and every other affliction bodily or mental in event of a party becoming totally and absolutely disabled and incapacitated.

The Sec. of the Co. was Mr. Stephen J. Aldrich, Sec. of the *Friend of the Clergy*. The Con. Act. was Mr. A. Scratchley. At a later period Mr. John Sheridan became Man.

The bus. of the Co. was small. In 1858 it took over the bus. of the *Engineers, Masonic, and General*; and also of the *Householders and General*.

In 1861 the entire bus. was trans. to the *British Nation*, and the Co. passed into the Court of Chancery to be wound up.

In the course of the winding-up (in 1853) was raised and determined the important question of whether participation in the profits of a life office rendered the participants partners in the liabilities of the office, or otherwise. The Co. issued both parti. and non-parti. pol. In the former it was stipulated that the funds and property of the So. should, subject to the D. of Sett., be liable to pay the sum insured, with such further sum as should, pursuant to the rules of the Co., be appropriated by way of bonus or add., with a proviso that the funds of the Co. should alone be liable, and negating personal liability. In the non-parti. class it was stipulated that the funds and property of the Co. should, subject to the deed, be liable to pay the sum ins., with a proviso that the funds of the Co. by the Deed applicable to the payment of pol., subject to prior claims thereon, pursuant to the Deed, be liable; and negating personal liability. The Deed provided that the Act. should estimate the amount of profits; that this estimate might be rejected or reduced by a meeting of shareholders, and that six-tenths of the divisible profits so ascertained should be apportioned by the Act., as he thought fair, among the parti. pol.-holders. V.C. Wood held—(1) *that such pol.-holders were not partners*. He further held—(2) *that the claimants under both classes of pol. were entitled to be paid out of the assets of the Co.—the Co. being in the course of winding up—pari passu with general creditors, as to which latter the liability of the shareholders was unlimited.*

[POL.-HOLDERS, LIABILITY OF.]

ENGLISH, JAMES, was Sec. of *Wesleyan Provident* from its formation down to 1871.

ENGLISH LIFE ANNUITY AND LOAN INS. CO.—Projected in 1864, with a proposed cap. of £100,000, Mr. Geo. W. Challis being the first regis. promoter.

ENGLISH LIFE ASSU., ANNUITY AND REVERSIONARY INT. ASSO.—Founded in 1842, with a proposed cap. of £500,000, in 25,000 shares of £20. The prosp. said:

Life assu. is essentially conservative of the interests of those near and dear to every man, and affords to all the means of securing to their descendants the right of living independently. Those disposed to avail themselves of it have an undoubted right to demand full guarantees for realizing the engagements undertaken by assu. sos., and to be free from any shadow of doubt as to the ultimate exact performance of the contract; to insure this to the provident is the object of the proposed So.

The uniform success attendant upon all ins. sos. formed upon a sound basis, their immense accumulated profits, large dividends to the shareholders, together with the bonuses returned from time to time to the assured, are facts which afford sufficient encouragement to the promoters and founders of this So. to feel perfect confidence in achieving the same results by steadily pursuing by their example (*sic*) similar prudent conduct.

The So. is founded upon strictly conservative principles—apart from their political signification—and none of those alluring promises will be held out, nor any of the acts resorted to, which have made so many the dupes of L. offices that rise up and fall every year, to the ruin of thousands who are induced to effect pol. and purchase annu. from specious T. of prem. and high-sounding names attached to their attractive advertisements. Instructed by the career of similar inst., they will leave nothing to be desired that a provident man may seek in any bus., of whatsoever kind it may be, that is within the province of a L. office.

We pass from the general to the particular:

A leading principle in the So. is to meet the views of its members by advances upon acknowledged security, and upon sureties with collateral pol., and to the amount of two-thirds of the prem. paid at any time suitable to the convenience of the members. The So. by uniting the trans. of a Rev. Int. So. with those of a L. office, secures their cap. in the most legitimate manner upon properties available for all prospective claims upon it; and by occasional investments in mortgages on the rich and rapidly improving estates in Australia, than which a safer security does not exist (10 and 12 p.c. being bank int. throughout the colony).

A list of some of the more successful life offices is given, after which:

Though the number of L. offices in this list may appear large, it is by no means so when the wealth and pop. of this country are considered; and a development of the benefits of L. assu. at present but very partially extended would add to the number of L. offices ten-fold, or to the proportionate extension of the bus. of the existing offices with safety and advantage to all concerned. This will be acknowledged when it is known that out of the pop. of the Brit. Empire in Europe, 30 millions, little more than 100,000 lives are ins.

The first title of the Co. was *English Conservative Life Office*; it was afterwards abbreviated as we have given it. The Consulting Act. was Adolphus W. Barnes, Esq., 3, New Inn. The offices were 14, Chatham Place. We believe the Co. was never completely established.

ENGLISH LIFE AND INVALID INS. CO.—Prov. regis. on 3 Nov. 1845, but never completely registered.

ENGLISH LIFE T.—FEMALES—(FARR).—The general results of this T. we have included under *English Life T. No. 2*. The more special results of the T. will be spoken of under *FEMALE LIFE*.

ENGLISH LIFE TABLES (GENERALLY).—The desirability of having T. to represent the general mort. of the country was felt at a very early period; but as no data applicable to the purpose existed before the present century, the attainment of such a result was simply impossible. The periodical enumeration of the people, commenced in 1801, was certain to lead up to the formation of such a T.; but, as we know, something more than the Census returns was necessary. Mr. Rickman, in collating the pop. returns in 1831, evidently had the notion of a general Mort. T. in view; but he only found the materials for one county—Essex. [ESSEX, MORT. T. FOR.] It was not until the legislature decreed the regis. of deaths (as also of births and marriages) in 1836, that the foundation was really laid for obtaining the data required for the construction of a national T. There have now been several T. of this character formed, each of which we propose to furnish a detailed account of. It is therefore necessary to consider the order in which they may be best presented.

But we must first notice a hypothetical or theoretical T.

The late Dr. Thomas Young, a mathematician of high repute, constructed what he termed a "Mean Standard T. of the Decrements of Life in Gt. Brit., 1824," and the following is the only passage in his writings, so far as we are aware, which throws light upon its construction:

It appears, therefore, to be highly prob. that the fairest basis for general computations, to be applied throughout Gt. Brit., may be obtained by a proper combination of the T. of *Northampton* (which have long been known and very generally approved) with the *Carlisle* T.—corrected, however, in their extravagant values of old lives, by some other documents [prob. the early mort. returns of the *Equitable* So.—see *EQUITABLE* So., MORT. EXPERIENCE OF]—and with the mort. of Lond. as derived from the Parish Regis.: which when thus incorp. with T. formed in the country, will be freed from the objections that have been made to the obs. of burials in great cities only.

Here is the T., which is stated by its author to apply to Gt. Brit., although we do not discover in his remarks any trace of mort. further north than Carlisle:

Age.	Living.	Decrements	Age.	Living.	Dcmts.	Age.	Living.	Dcmts.	Age.	Living.	Dcmts.
0	100,003	20,531	29	47,225	698	58	23,673	929	87	1240	258
1	79,472	9,106	30	46,527	705	59	22,744	934	88	982	215
2	70,366	4,780	31	45,822	712	60	21,810	938	89	767	178
3	65,586	2,854	32	45,110	719	61	20,872	942	90	589	164
4	62,732	1,880	33	44,391	726	62	19,930	943	91	425	130
5	60,852	1,341	34	43,665	734	63	18,987	944	92	295	87
6	59,511	979	35	42,931	742	64	18,043	943	93	208	60
7	58,532	752	36	42,189	751	65	17,100	942	94	148	44
8	57,780	603	37	41,438	759	66	16,158	939	95	104	31
9	57,177	494	38	40,679	768	67	15,219	933	96	73	19
10	56,683	423	39	39,911	776	68	14,286	926	97	54	14
11	56,260	377	40	39,135	785	69	13,360	915	98	40	9
12	55,883	349	41	38,350	795	70	12,445	903	99	31	6
13	55,534	337	42	37,555	804	71	11,542	888	100	25	6
14	55,197	337	43	36,751	813	72	10,654	871	101	19	5
15	54,860	347	44	35,938	821	73	9,783	850	102	14	5
16	54,513	381	45	35,117	831	74	8,933	826	103	9	4
17	54,132	393	46	34,286	839	75	8,107	801	104	5	2
18	53,739	422	47	33,447	848	76	7,306	768	105	3	1
19	53,317	458	48	32,599	857	77	6,538	733	106	■	25
20	52,859	497	49	31,742	866	78	5,805	697	107	1'75	25
21	52,362	540	50	30,876	874	79	5,108	654	108	1'50	25
22	51,822	581	51	30,002	882	80	4,454	610	109	1'25	25
23	51,241	621	52	29,120	890	81	3,844	559	110	1'0	25
24	50,620	656	53	28,230	898	82	3,285	513	111	75	25
25	49,964	678	54	27,332	906	83	2,772	460	112	50	25
26	49,286	682	55	26,426	913	84	2,312	408	113	25	25
27	48,604	687	56	25,513	917	85	1,904	357	114	0	0
28	47,917	692	57	24,596	923	86	1,547	307			

What we now know as *English* T. No. 1 was first pub. in 1843; it has been supplemented by two others, based more or less upon the same data. These three T. we shall describe under **ENGLISH LIFE T. (FARR).**

In 1845 Mr. F. G. P. Neison produced an *English* Life T., based partly upon the same data as had been employed by Dr. Farr. This we shall describe next in order as **ENGLISH LIFE T. (NEISON).** Finally, in 1860 Dr. Farr produced the *Healthy Districts* Life T. This we shall speak of as **ENGLISH LIFE T.—HEALTHY DISTRICTS—(FARR).** The criticisms upon these T. will be passed under review; as also the points of resemblance or disparity exhibited by the several T.

ENGLISH LIFE T. (FARR).—[Sometimes designated *National* T.; sometimes *Farr's* T.; and occasionally the *Reg.-Gen. T.*] These tables having been pub. at different times, and from different data, it will be well to speak of them separately, in the first instance. They are ordinarily designated by numbers corresponding to their order of publication. Dr. Wm. Farr, F.R.S., of the Reg.-Gen. Office, is the compiler of each.

English Life T. No. 1.—This T. appeared in the 5th Rep. of the Reg.-Gen. pub. 1843. The T. is based upon the census returns for E. and W. in 1841, and the recorded deaths of that year. The pop. was 15,927,867; the deaths 343,847. The census was taken for the night of June 6. The increase in the pop. from 1831 to 1841 was 1'334 p.c. The following are the details of ages, etc.

Pop., Deaths, and Mort., of England, 1841.

1	2	3	4	5	6	7	8	9	10	11
Age.	Pop., Calculated for July 1st, 1841.			Deaths Regis. 1841.			Ann. Mort. p. c.			One death to persons living.
	Persons.	Males.	Females.	Persons.	Males.	Females.	Mean.	Males.	Fems.	
0-1	429,419	210,507	218,912	74,210	41,444	32,766	17'355	19'726	14'984	6
1-2	429,803	215,493	214,310	27,268	13,987	13,281	6'353	6'503	6'204	16
2-3	437,276	218,208	219,068	15,027	7,516	7,511	3'441	3'451	3'432	29
3-4	410,077	203,653	206,424	9,914	5,028	4,886	2'422	2'474	2'370	41
4-5	401,555	201,238	200,317	7,164	3,620	3,544	1'786	1'802	1'771	60
0-5	2,108,130	1,049,099	1,059,031	133,583	71,595	61,988	6'349	6'838	5'860	16
5-10	1,906,576	953,893	952,683	17,868	9,093	8,775	'938	'955	'922	107
10-15	1,733,652	881,129	852,523	9,116	4,478	4,638	'527	'509	'545	190
15-20	1,588,340	782,425	805,915	12,056	5,604	6,452	'759	'718	'801	132
20-25	1,551,703	724,013	827,690	13,922	6,633	7,289	'900	'918	'882	111
25-30	1,284,020	611,390	672,630	12,889	6,045	6,844	1'005	'991	1'019	100
30-35	1,167,954	565,226	602,728	11,414	5,422	5,992	'978	'961	'995	102
35-40	885,306	435,430	449,876	11,195	5,385	5,810	1'266	1'239	1'293	79
40-45	888,806	435,991	452,815	10,510	5,251	5,259	1'185	1'207	1'163	84
45-50	639,202	313,709	325,493	10,244	5,322	4,922	1'607	1'700	1'514	62
50-55	634,904	307,435	327,469	10,811	5,673	5,138	1'710	1'849	1'571	58
55-60	392,166	189,816	202,350	10,552	5,418	5,134	2'700	2'860	2'540	37
60-65	440,110	209,248	230,862	13,813	7,090	6,723	3'155	3'395	2'915	32
65-70	259,839	120,829	139,010	14,071	6,881	7,190	5'442	5'706	5'178	18
70-75	224,431	104,138	120,293	15,569	7,630	7,939	6'974	7'341	6'607	14
75-80	120,015	55,653	64,362	14,525	6,992	7,533	12'152	12'588	11'717	8
80-85	70,494	31,136	39,358	11,681	5,358	6,323	16'662	17'242	16'083	6
85-90	24,008	10,149	13,859	6,550	2,841	3,709	27'418	28'047	26'790	4
90-95	6,541	2,493	4,048	2,243	898	1,345	34'677	36'091	33'264	3
95-100	1,421	497	924	604	220	384	42'972	44'352	41'592	2
100 & upwards	249	82	167	110	29	81	41'829	35'221	48'438	2
All Ages	15,927,867	7,783,781	8,144,086	343,847	174,198	169,649	2'160	2'238	2'083	46

Note.—The cols. 2, 3, and 4 may be held to represent the average number of persons living who incurred the risk of death in Eng. in the year 1841. The ann. rate of increase was assumed to be the same as in the 10 years 1831-41, namely, 1'334 p.c.; and the ages of those whose ages were not specified, to be the same as those whose ages were specified. The cols. include the army, persons travelling on railways, and 1366 men on the river Thames.

The totals of the cols. 5, 6, and 7 contain 521 persons (340 males and 181 females), whose ages were not specified.

The cols. 8, 9, 10, and 11, may be read thus:—At the age of 35-40 of 100 men living, 1'239 died; of 100 women 1'293 died; the mean mort. of the two sexes (50 of each) was 1'266, which is equal to 1 in 79.

The cols. 8, 9, and 10, read without reference to the decimal point, show the deaths out of 100,000 living at each age. [5th Rep. p. 15.]

The obs. were taken on a plan which had been recommended by Prof. De Morgan; and Mr. Griffith Davies. Dr. Farr says in the 5th Rep. (p. 342):

The following pages contain an account of the methods which were employed in constructing the *English Life T.* Every step may be very verified, and thus the adequacy be estimated of the various hypotheses or adjustments, to which it is always necessary to resort in reducing the intricate facts of nature, more or less imperfectly observed, into any general systematic order. Better methods may be suggested by some of the many eminent men who devote their studies to questions of this nature. . . . Two methods were employed: the second, by the differential method, occurred to me as a good test of the accuracy of the results of the first method, and it succeeded so satisfactorily that I think it well suited to such constructions; for it not only furnishes a regular law of interpolation, but provides tests of accuracy, and enables us to pass directly from any one point in the series to any other; to determine, for instance, from the given number living at 20, the chance of living, and the number of survivors at the age of 30, 40, or 50, etc.

Next, regarding the data on which the T. is founded, we are told:

In practice it was found that neither the ages of the living nor of the dead were stated year by year with sufficient exactness to form the basis of calculations; and if the age had been correctly stated in single years, it would probably have been necessary to add the numbers together in quinquennial or decennial periods to obtain uniform results.

In forming the *English Life T.*, the mort. in the first 5 years was deduced from the deaths and pop. at each of those several years of age; and subsequently from the deaths and pop. in periods of 5 years.

A person is said to be 21 years of age when he attains his 21st birthday, and in ordin. language he is

called 21 until his 22nd birthday; the days and months over 21 years not being expressed. Human life is thus measured by years; fractions of years are not expressed; and where age is at all uncertain, the decimal system in use, and perhaps the tendency to understate age, naturally leads us to call a person 30 until he is 40, and to use only decennial ages. The ages at death are more correctly inquired into, and more correctly stated. The errors are of the same kind, but less considerable. Hence it happens that the number of persons living returned at 30-35, etc., is swelled to nearly the same extent as the number returned at 35-40, etc.; and when the deaths are divided by the living returned at those ages, the quotients representing the mort. are too low at the first part, and too high at the last part of every decennial age.

A person aged 21 and under 22 is also said to be in his 22nd year; and the assn. offices refer him to age 22 in their T. If it be borne in mind that the average age of persons called in common language 21, is 21½ years, it will not be inconvenient to adhere to the popular usage; as the popular is very easily converted into the scientific expression of age.

Again :

It is well known that no physical obs. are quite accurate; but if the errors of either sense or instrument are small, they may be neglected; if large, their cause is generally known, and the necessary corrections can be introduced. The ages of the pop. will no doubt be more correctly given when the regis. system has been longer in operation, and ages are better known; but after an attentive examination of the English returns, it is my opinion that the ages of the people have been returned with sufficient accuracy for all practical uses in decennial periods. Some ages were no doubt designedly mis-stated; but the errors appear generally to be such as arose from ignorance—where the enumerators or the informants guessed at ages, which were not known by the parties at the time the Census was taken. Similar inaccuracies will be observed in the returns of the ages of both sexes; so that the ladies must not be charged generally—on the strength of a few notorious instances—with the weak infirmity of understating, and thereby leading other people to exaggerate their age.

The errors in the returns of ages might be corrected in several ways. If the numbers living were grouped in periods of 5 years under 20, and afterwards in periods of 10 years, the anomalies to which I have adverted would, in great part, disappear. . . .

We are then told the mode which was adopted to overcome the difficulties indicated, viz. treating the two series of numbers representing the mort. from 15 to 55, and 55 to 95, as geometric progressions. The ratios were derived from a comparison of the increase in the mort. at 15-20, 25-30, 35-40, etc.; and the increase at 20-25, 30-35, 40-45, etc. Upon this hypothesis, the annexed numbers, headed "Obs. Corrected," were calculated. The col. headed "Obs." was derived directly from the facts returned, corrected only for the increase of pop. and unenumerated ages.

Age.	Mort. p. c.			
	MALES.		FEMALES.	
	Obs.	Obs. Corrected	Obs.	Corrected Obs.
15-20	·718	·736	·801	·789
20-25	·918	·836	·882	·873
25-30	·991	·951	1·019	·966
30-35	·961	1·081	·995	1·069
35-40	1·239	1·230	1·293	1·183
40-45	1·207	1·398	1·163	1·308
45-50	1·700	1·590	1·514	1·448
50-55	1·849	1·807	1·571	1·602

The mort. of males increased nearly 2·6 p.c., of females 2 p.c., with every year of age. The ages of the army of Eng. (in force about 29,000) were not taken into account when this correction was made.

The series of "Old Age" commences at 55-60, which is worked out as in the preceding T. :

After 55 the mort. of both sexes increased nearly 8 p.c. with every year of age. The mort. after 95 appeared not to increase at the same rate; but the smallness of the numbers, and the difficulty of procuring accurate statement of ages so far advanced, rendered the matter somewhat doubtful.

Dr. Farr then proceeds to state how the preceding data were applied to the construction of the *English Life T.*

The basis of the T., 100,000, is divided into 2 sections; and as the births of males were 520,157, and of females 494,304, in the 2 years 1840-41, the numbers 51,274 and 48,726 were made the origins of two separate cols., showing the progress of males and females through life. The T. represents a generation of 100,000 individuals born at the same instant; and the construction has the advantage of showing the relative number of males and females contemporaneously existing, as well as their different prob. and expec. of life at every age.

According to the T. 51,274 males were reduced to 43,104 in a year, and 48,726 females to 42,265 in the same time. The decrease was thus obtained: the births of boys in the two years 1840-41 amounted to 520,157; which was at the rate of 260,078 a year; when it may be assumed that 260,078 were born in the year, of which 1 January, 1841, was the middle—or that the mean date of their birth was January 1, 1841. We can then reason upon the assumption that 260,078 boys—the mean ann. number of boys born in 1840 and in 1840-41—were born 1 January, 1841. But all the boys who died in 1841, under 1 year of age, must have been boys born in 1840 and in 1841. The deaths occurred in the year 1841—in one year—and they must therefore be compared with the births in one year, viz., with the births in

Age.	Mort. p. c.			
	MALES.		FEMALES.	
	Obs.	Obs. Corrected	Obs.	Obs. Corrected
55-60	2·860	2·533	2·540	2·206
60-65	3·395	3·731	2·915	3·288
65-70	5·706	5·495	5·178	4·901
70-75	7·341	8·094	6·607	7·305
75-80	12·588	11·920	11·717	10·887
80-85	17·242	17·557	16·083	16·232
85-90	28·047	25·859	26·790	24·196
90-95	36·091	38·085	33·264	36·067

the year of which January 1, 1841, was the middle. We have then this result, that 41,444 of 260,078 boys born died in the first year after birth.

The deaths in the first year were 8170: for the 51,274 boys born alive were reduced in the year to 43,104. In the same way it was found that out of 48,726 girls born alive, 6461 died, leaving 42,265 alive at the end of the first year.

All the births are not regis.: the deaths in the first year must have occurred out of more than the number of births returned; and the mort. in the first year must have been less than that given in the T., which is, however, lower than the mort. deduced immediately from the children stated at the enumeration to be living at the first year of age, and the deaths regis. at the same age. As it is, the mort. in the first year stands lower than in any other authentic T. According to the *Carlisle T.*, 1539 in 10,000 children born alive died in the first year; while the decrement in this Life T. is 1463 at the same age.

Dr. Farr enters into further details of a scientific character. We do not propose to follow him. We have given enough of his explanation to make the T. itself clear; and some criticisms of it will be given at the conclusion of this art.

The following is the T., except that we have combined the two T. of Dr. Farr in this one for convenience of reference:

ENGLISH LIFE T. No. I.—1843.

Age.	Living.			Dying.			Expectations.			Age.
	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.	
0	100,000	51,274	48,726	14631	8170	6461	41'16	40'19	42'18	0
1	85,369	43,104	42,265	5267	2716	2551	47'13	46'71	47'55	1
2	80,102	40,388	39,714	2710	1370	1340	49'19	48'82	49'57	2
3	77,392	39,018	38,374	1853	954	899	49'89	49'52	50'29	3
4	75,539	38,064	37,475	1338	679	659	50'11	49'74	50'48	4
5	74,201	37,385	36,816	1047	542	505	50'01	49'64	50'38	5
6	73,154	36,843	36,311	834	432	402	49'71	49'36	50'07	6
7	72,320	36,411	35,909	676	346	330	49'28	48'94	49'62	7
8	71,644	36,065	35,579	563	278	285	48'74	48'41	49'08	8
9	71,081	35,787	35,294	469	223	246	48'12	47'78	48'47	9
10	70,612	35,504	35,048	392	179	213	47'44	47'08	47'81	10
11	70,220	35,385	34,835	364	179	185	46'70	46'31	47'10	11
12	69,856	35,206	34,650	351	178	173	45'94	45'54	46'34	12
13	69,505	35,028	34,477	415	218	197	45'17	44'77	45'58	13
14	69,090	34,810	34,280	463	237	226	44'44	44'05	44'84	14
15	68,627	34,573	34,054	497	240	257	43'74	43'35	44'13	15
16	68,130	34,333	33,797	507	246	261	40'05	42'65	43'46	16
17	67,623	34,087	33,536	514	250	264	42'37	41'95	42'80	17
18	67,109	33,837	33,272	521	254	267	41'69	41'26	42'13	18
19	66,588	33,583	33,005	529	259	270	41'01	40'57	41'47	19
20	66,059	33,324	32,735	537	264	273	40'34	39'88	40'81	20
21	65,522	33,060	32,462	545	268	277	39'67	39'19	40'15	21
22	64,977	32,792	32,185	552	273	279	38'99	38'51	39'49	22
23	64,425	32,519	31,906	561	278	283	38'32	37'83	38'83	23
24	63,864	32,241	31,623	569	283	286	37'66	37'15	38'17	24
25	63,295	31,958	31,337	576	287	289	36'99	36'47	37'52	25
26	62,719	31,671	31,048	585	292	293	36'33	35'80	36'86	26
27	62,134	31,379	30,755	592	297	295	35'66	35'13	36'21	27
28	61,542	31,082	30,460	601	302	299	35'00	34'46	35'55	28
29	60,941	30,780	30,161	609	307	302	34'34	33'79	34'90	29
30	60,332	30,473	29,859	617	312	305	33'68	33'13	34'25	30
31	59,715	30,161	29,554	624	316	308	33'02	32'47	33'60	31
32	59,091	29,845	29,246	632	321	311	32'37	31'80	32'94	32
33	58,459	29,524	28,935	639	326	313	31'71	31'14	32'29	33
34	57,820	29,198	28,622	648	331	317	31'06	30'49	31'64	34
35	57,172	28,867	28,305	654	335	319	30'40	29'83	30'99	35
36	56,518	28,532	27,986	663	340	323	29'75	29'17	30'34	36
37	55,855	28,192	27,663	669	344	325	29'10	28'52	29'68	37
38	55,186	27,848	27,338	676	349	327	28'14	27'87	29'03	38
39	54,510	27,499	27,011	685	354	331	27'79	27'21	28'38	39
40	53,825	27,145	26,680	691	358	333	27'14	26'56	27'72	40
41	53,134	26,787	26,347	698	362	336	26'49	25'91	27'07	41
42	52,436	26,425	26,011	705	367	338	25'83	25'26	26'41	42
43	51,731	26,058	25,673	711	371	340	25'18	24'61	25'75	43
44	51,020	25,687	25,333	719	376	343	24'52	23'96	25'09	44
45	50,301	25,311	24,990	724	379	345	23'86	23'30	24'43	45
46	49,577	24,932	24,645	730	383	347	23'20	22'65	23'76	46
47	48,847	24,549	24,298	737	388	349	22'54	22'00	23'10	47
48	48,110	24,161	23,949	741	390	351	21'88	21'34	22'43	48

Age.	Living.			Dying.			Expectations.			Age.
	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.	
49	47,369	23,771	23,598	748	395	353	21'22	20'68	21'75	49
50	46,621	23,376	23,245	753	398	355	20'55	20'02	21'07	50
51	45,868	22,978	22,890	757	401	356	19'88	19'36	20'39	51
52	45,111	22,577	22,534	764	405	359	19'20	18'70	19'71	52
53	44,347	22,172	22,175	766	407	359	18'52	18'03	19'02	53
54	43,581	21,765	21,816	785	410	375	17'84	17'36	18'32	54
55	42,796	21,355	21,441	849	449	400	17'16	16'68	17'63	55
56	41,947	20,906	21,041	909	485	424	16'50	16'03	16'96	56
57	41,038	20,421	20,617	961	511	450	15'85	15'40	16'30	57
58	40,077	19,910	20,167	1013	537	476	15'22	14'78	15'65	58
59	39,064	19,373	19,691	1068	565	503	14'60	14'18	15'02	59
60	37,996	18,808	19,188	1122	592	530	14'09	13'50	14'40	60
61	36,874	18,216	18,658	1176	618	558	13'41	13'01	13'79	61
62	35,698	17,598	18,100	1230	645	585	12'83	12'45	13'20	62
63	34,468	16,953	17,515	1283	670	613	12'27	11'91	12'63	63
64	33,185	16,283	16,902	1333	694	639	11'73	11'38	12'07	64
65	31,852	15,589	16,263	1383	717	666	11'20	10'86	11'52	65
66	30,469	14,872	15,597	1427	737	690	10'68	10'36	10'99	66
67	29,042	14,135	14,907	1470	757	713	10'18	9'87	10'48	67
68	27,572	13,378	14,194	1505	771	734	9'70	9'40	9'98	68
69	26,067	12,607	13,460	1536	784	752	9'23	8'95	9'50	69
70	24,531	11,823	12,708	1560	792	768	8'78	8'51	9'03	70
71	22,971	11,031	11,940	1575	796	779	8'34	8'08	8'58	71
72	21,396	10,235	11,161	1582	796	786	7'92	7'67	8'14	72
73	19,814	9,439	10,375	1581	791	790	7'51	7'28	7'72	73
74	18,233	8,648	9,585	1569	781	788	7'12	6'90	7'31	74
75	16,664	7,867	8,797	1544	764	780	6'74	6'53	6'92	75
76	15,120	7,103	8,017	1511	743	768	6'38	6'18	6'55	76
77	13,609	6,360	7,249	1463	715	748	6'03	5'85	6'19	77
78	12,146	5,645	6,501	1407	683	724	5'69	5'52	5'84	78
79	10,739	4,962	5,777	1341	646	695	5'37	5'21	5'51	79
80	9,398	4,316	5,082	1262	604	658	5'07	4'92	5'20	80
81	8,136	3,712	4,424	1173	557	616	4'78	4'64	4'90	81
82	6,963	3,155	3,808	1082	510	572	4'50	4'37	4'61	82
83	5,881	2,645	3,236	981	458	523	4'24	4'11	4'34	83
84	4,900	2,187	2,713	879	407	472	3'98	3'87	4'07	84
85	4,021	1,780	2,241	774	355	419	3'75	3'64	3'83	85
86	3,247	1,425	1,822	670	304	366	3'52	3'42	3'59	86
87	2,577	1,121	1,456	571	257	314	3'30	3'22	3'37	87
88	2,006	864	1,142	477	212	265	3'10	3'03	3'16	88
89	1,529	652	877	389	171	218	2'91	2'85	2'96	89
90	1,140	481	659	311	135	176	2'74	2'68	2'77	90
91	829	346	483	242	104	138	2'57	2'53	2'60	91
92	587	242	345	182	77	105	2'43	2'40	2'44	92
93	405	165	240	135	56	79	2'30	2'30	2'29	93
94	270	109	161	96	40	56	2'19	2'23	2'16	94
95	174	69	105	64	25	39	2'13	2'22	2'06	95
96	110	44	66	42	16	26	...	...	...	96
97	68	28	40	26	10	16	...	...	...	97
98	42	18	24	17	7	10	...	...	...	98
99	25	11	14	9	4	5	...	...	...	99
100	16	7	9	6	2	4	...	...	...	100
101	10	5	5	4	2	2	...	...	...	101
102	6	3	3	2	1	1	...	...	...	102
103	4	2	2	2	1	1	...	...	...	103
104	2	1	1	1	1	1	...	...	...	104
105	1	...	...	1	...	...	...	...	...	105

In the 6th Rep. of Reg.-Gen., Dr. Farr gave a series of money values deduced from his *English T. No. 1.* He says of the T. generally :

It shows for the first time the ann. prem. required for the ins. of the lives of males and females, according to the law of mort. prevailing among the people of this country. . . . It is in the interest of Life offices estab. upon sound principles, and properly conducted, that the public should be put in possession of the means of forming correct opinions on the adequacy and equity of the terms upon which it is estimated that cap. to the amount of 50 millions has been already invested; a rapidly accumulating property, which may be expected to increase still faster when the transactions are based not only upon a broad and just foundation, but upon well-understood principles.

In the paper upon the Life T. and its practical applications, I have described the improvements in its construction since the time of Halley. I have also added a new col. [Y,—see COLUMNAR METHOD], by which a great variety of problems in the doctrine of pop. may be readily solved. The Life T. in its present form shows the mean age of the living, and the mean time which, according to past experience, an existing generation will live; it solves all questions respecting the living which the old "T. of Mort." solved respecting the dying, and all the questions respecting the living "at any age and upwards," which the former T. solved respecting the living "at any particular age." The T. thus acquires many new properties, a few of which are illustrated by examples. One curious result is, that in a stationary pop., subject to the Eng. law of mort., the mean age of the people is 32 years, and that the mean time they will live is also 32 years. In a stationary community of 41,159 persons, 1000 ann. deaths would be compensated by 1000 births; the mean age at death would be 41 years (or more exactly, 41.159 years); the mean age of the 41,159 living, taken at a census, would be found to be 32 years; and the 41,159 would live, upon an average, 32 years from the date of the census. Whatever may be the law of mort., where the births and deaths are equal, the years which a people have lived are equal to the years which they will live. When the births exceed the deaths, there is an excess of young persons, and the mean age of the pop. is less than the mean number of years which they will live. The mean age, for instance, of the males now living in Eng., deduced from the returns of the last census, is 25½ years; whereas if the pop. were stationary, the mean age would be 32 years, and thus be the same as the mean age of successive generations.

The T. of the mean joint-lifetime of males and females shows that in this country husbands and wives, married at the age of 25, live, on an average, 27 years together; the widows living rather more than 10 years (10½) after their husbands' deaths, and the widowers nearly nine years (9½) after their wives' deaths. Where the husband is 40, and the wife 30, the mean time of married life is 21 years; the widows living 13 years after their husbands, and the widowers 5 years after the death of their wives. The T. furnish ready answers to a great number of questions of this kind and others, in which two lives are concerned.

A subsequent series of T. arranged in the form now generally admitted to be best will serve to solve all the questions as to values of annu., leases, incomes, or insurances—temporary, deferred, or for life—upon the life of a male or of a female, whether the int. of money be 3 or 4 p.c. The T. for the joint lives of the males and females will solve all the questions in which a male and female life are concerned, if the female be of the same age, or be 10 or 20 years younger than the male. The prems. required to provide for widows may hence be determined.

These T. will be referred to under their proper heads; while under LIFE INS., FINANCE OF, a complete scheme of Life Ins., as shown by Dr. Farr, deduced from the English T. (No. 1), will be given.

In 1845 Mr. F. G. P. Neison pub. the 1st ed. of his *Contributions to Vital Statistics*, etc., and therein is given a Life T. deduced from the data contained in the 2nd, 3rd, 4th, and 5th Reps. of Reg.-Gen., and from the returns of the Census of 1841. This T., together with some account of the circumstances which led to its compilation, we shall give by way of appendix to the present art.

English Life T. No. 2.—This T. was contained in 12th Rep. of Reg.-Gen. pub. 1863. The pop. of 1841 serves for the base of the T., as it had served for that of No. 1; but there were several corrections on minor points. The deaths were now extended over a period of 7 years, 1838-44—being 3 years previous to 1841 and 3 years subsequent. The total deaths under obs. thus became increased to 2,436,648.

The following is the data upon which this T. No. 2 is based:

Pop., Deaths, and Mort. in Eng. for the 7 years 1838-44.

Ages.	Pop. 1841. (Estimated to the middle of the year.)		Deaths in 7 Years.		Ann. Rate of Mort. p.c.	
	Males.	Females.	Males.	Females.	Males.	Females.
0-	210,341	218,851	301,378	236,261	20.510	15.440
1-	215,322	214,250	100,874	95,764	6.706	6.393
2-	218,035	219,006	53,785	53,449	3.531	3.490
3-	203,492	206,368	35,826	35,802	2.520	2.481
4-	201,080	200,263	26,034	25,634	1.853	1.831
5-	1,048,270	1,058,738	517,897	446,910	7.072	6.037
6-	953,235	952,450	61,659	59,903	.926	.900
10-	880,907	852,517	31,028	32,662	.504	.548
15-	1,507,944	1,633,939	84,833	95,152	.805	.833
25-	1,178,131	1,275,849	79,703	89,967	.968	1.009
35-	871,845	902,863	76,093	78,431	1.249	1.242
45-	621,142	653,065	77,047	70,680	1.776	1.548
55-	398,937	433,202	87,539	84,275	3.141	2.782
65-	224,863	259,283	103,873	106,692	6.613	5.885
75-	86,736	103,707	87,218	95,723	14.394	13.201
85-	12,635	17,906	26,167	34,497	29.646	27.553
95 and upwards	579	1,091	1,727	3,112	42.697	40.795
All ages specified	7,785,224	8,144,610	1,234,784	1,198,004	—	—
Not specified	—	—	2,505	1,355	—	—
All ages - - -	7,785,224	8,144,610	1,237,289	1,199,359	2.270	2.104

The mort. in the years 1838-44 was not disturbed by any great epidemics.
Dr. Farr says [12th Rep. p. ii. 2nd part]:

The facts from which the new T. is derived have been already given in your 9th Ann. Rep. Various methods of graduation were tried. The abstracts of the pop. for 1841 distinguished the numbers living at each quinquennial period of life, and the abstracts of deaths are taken at corresponding periods, except in the first 5 years of age, when the rate of mort. varies so rapidly that every year and even month is marked by a change. But by a careful examination of the facts, it was found that the rate of mort. in decennial periods, after the age of 15, furnishes the most satisfactory basis for determining the series of fractions to express the prob. of life. At the earlier ages the mort. for each year was directly deduced from the returns. . . .

It will be observed that while the former T. gave "persons," as well as males and females, the present T. gives the result for males and females only, and not for persons; hence the combined results are not shown here. In T. No. 3 the results are given as in No. 1, combined and severally.

The following are the leading results of T. No. 2, as to *Males*, and as to *Females*. The T. as to *Females* were not actually pub. until 1859, when they appeared in the 20th Rep. of Reg.-Gen.; but they are brought in here for convenience of reference:

Ages.	Living.		Dying.		Expectations.		Ages.
	Males.	Females.	Males.	Females.	Males.	Females.	
0	5,126,235	4,873,765	817,331	641,426	40'36	42'04	0
1	4,308,904	4,232,339	281,493	256,346	46'95	47'36	1
2	4,027,411	3,975,993	145,352	146,049	49'20	49'38	2
3	3,882,059	3,829,944	95,786	98,599	50'03	50'25	3
4	3,786,273	3,731,345	69,451	71,254	50'28	50'56	4
5	3,716,822	3,660,091	50,073	51,534	50'21	50'53	5
6	3,666,749	3,608,557	36,653	37,479	49'89	50'25	6
7	3,630,096	3,571,078	31,331	30,154	49'39	49'77	7
8	3,598,765	3,540,924	26,047	24,840	48'81	49'19	8
9	3,572,718	3,516,084	22,976	23,410	48'16	48'53	9
10	3,549,742	3,492,674	19,260	17,837	47'47	47'86	10
11	3,530,482	3,474,837	16,926	17,261	46'73	47'10	11
12	3,513,556	3,457,576	16,668	17,107	45'95	46'33	12
13	3,496,888	3,440,469	16,466	17,776	45'17	45'56	13
14	3,480,392	3,422,693	19,061	20,339	44'38	44'79	14
15	3,461,331	3,402,354	17,203	19,812	43'62	44'06	15
16	3,444,128	3,382,542	19,532	25,207	42'84	43'31	16
17	3,424,596	3,357,335	22,674	26,700	42'08	42'64	17
18	3,401,922	3,330,635	25,802	26,946	41'35	41'97	18
19	3,376,120	3,303,689	26,861	27,198	40'67	41'31	19
20	3,349,259	3,276,491	27,125	27,455	39'99	40'65	20
21	3,322,134	3,249,036	27,380	27,719	39'31	39'99	21
22	3,294,754	3,221,317	27,629	27,985	38'63	39'33	22
23	3,267,125	3,193,332	27,879	28,258	37'96	38'67	23
24	3,239,246	3,165,074	28,128	28,536	37'28	38'01	24
25	3,211,118	3,136,538	28,383	28,819	36'60	37'35	25
26	3,182,735	3,107,719	28,647	29,104	35'92	36'69	26
27	3,154,088	3,078,615	28,924	29,395	35'24	36'04	27
28	3,125,164	3,049,220	29,215	29,688	34'57	35'38	28
29	3,095,949	3,019,532	29,525	29,987	33'89	34'72	29
30	3,066,424	2,989,545	29,856	30,285	33'21	34'06	30
31	3,036,568	2,959,260	30,208	30,589	32'53	33'41	31
32	3,006,360	2,928,671	30,585	30,893	31'85	32'75	32
33	2,975,775	2,897,778	30,990	31,199	31'17	32'10	33
34	2,944,785	2,866,579	31,420	31,508	30'50	31'44	34
35	2,913,365	2,835,071	31,886	31,816	29'82	30'78	35
36	2,881,479	2,803,255	32,379	32,124	29'15	30'13	36
37	2,849,100	2,771,131	32,905	32,433	28'47	29'47	37
38	2,816,195	2,738,698	33,464	32,739	27'80	28'81	38
39	2,782,731	2,705,959	34,053	33,045	27'13	28'16	39
40	2,748,678	2,672,914	34,678	33,350	26'46	27'50	40
41	2,714,000	2,639,564	35,334	33,650	25'79	26'84	41
42	2,678,666	2,605,914	36,024	33,949	25'12	26'18	42
43	2,642,642	2,571,965	36,743	34,242	24'46	25'52	43
44	2,605,899	2,537,723	37,495	34,532	23'79	24'86	44
45	2,568,404	2,503,191	38,272	34,816	23'13	24'19	45
46	2,530,132	2,468,375	39,077	35,095	22'48	23'53	46
47	2,491,055	2,433,280	39,908	35,367	21'82	22'86	47

Ages.	Living.		Dying.		Expectations.		Ages.
	Males.	Females.	Males.	Females.	Males.	Females.	
48	2,451,147	2,397,913	40,759	35,630	21'17	22'19	48
49	2,410,388	2,362,283	41,629	35,887	20'52	21'52	49
50	2,368,759	2,326,396	42,514	37,047	19'87	20'84	50
51	2,326,245	2,289,349	43,412	38,753	19'22	20'17	51
52	2,282,833	2,250,596	44,315	40,368	18'58	19'51	52
53	2,238,518	2,210,228	45,219	41,912	17'94	18'85	53
54	2,193,299	2,168,316	46,119	43,412	17'30	18'21	54
55	2,147,180	2,124,904	47,003	44,909	16'66	17'57	55
56	2,100,177	2,079,995	48,530	46,439	16'02	16'94	56
57	2,051,647	2,033,556	51,921	48,030	15'39	16'32	57
58	1,999,726	1,985,526	55,033	49,706	14'77	15'70	58
59	1,944,693	1,935,820	57,914	51,484	14'18	15'09	59
60	1,886,779	1,884,336	60,599	53,373	13'60	14'49	60
61	1,826,180	1,830,963	63,119	55,375	13'03	13'89	61
62	1,763,061	1,775,588	65,497	57,483	12'48	13'31	62
63	1,697,564	1,718,105	67,744	59,683	11'94	12'74	63
64	1,629,820	1,658,422	69,861	61,951	11'42	12'18	64
65	1,559,959	1,596,471	71,841	64,253	10'90	11'63	65
66	1,488,118	1,532,218	73,663	66,549	10'41	11'10	66
67	1,414,455	1,465,669	75,302	68,787	9'92	10'58	67
68	1,339,153	1,396,882	76,718	70,913	9'45	10'08	68
69	1,262,435	1,325,969	77,871	72,860	9'00	9'59	69
70	1,184,504	1,253,109	78,709	74,560	8'55	9'12	70
71	1,105,855	1,178,549	79,182	75,941	8'13	8'67	71
72	1,026,673	1,102,608	79,234	76,933	7'72	8'23	72
73	947,439	1,025,675	78,817	77,463	7'32	7'81	73
74	868,622	948,212	77,884	77,473	6'94	7'40	74
75	790,738	870,739	76,400	76,909	6'57	7'02	75
76	714,338	793,830	74,342	75,730	6'22	6'65	76
77	639,996	718,100	71,704	73,917	5'89	6'30	77
78	568,292	644,183	68,499	71,466	5'57	5'96	78
79	499,793	572,717	64,759	68,395	5'26	5'65	79
80	435,034	504,322	60,540	64,749	4'97	5'34	80
81	374,494	439,573	55,914	60,592	4'70	5'06	81
82	318,580	378,981	50,979	56,007	4'44	4'79	82
83	267,601	322,974	45,839	51,099	4'19	4'53	83
84	221,762	271,875	40,614	45,983	3'96	4'29	84
85	181,148	225,892	35,425	40,782	3'74	4'06	85
86	145,723	185,110	30,387	35,619	3'53	3'84	86
87	115,336	149,491	25,611	30,613	3'33	3'64	87
88	89,725	118,878	21,186	25,868	3'14	3'44	88
89	68,539	93,010	17,184	21,474	2'97	3'26	89
90	51,355	71,536	13,652	17,498	2'80	3'09	90
91	37,703	54,038	10,611	13,982	2'65	2'93	91
92	27,092	40,056	8,060	10,947	2'50	2'78	92
93	19,032	29,109	5,977	8,391	2'36	2'64	93
94	13,055	20,718	4,321	6,289	2'23	2'51	94
95	8,734	14,429	3,043	4,606	2'11	2'38	95
96	5,691	9,823	2,083	3,293	2'00	2'26	96
97	3,608	6,530	1,386	2,296	1'89	2'15	97
98	2,222	4,234	894	1,559	1'79	2'05	98
99	1,328	2,675	559	1,030	1'69	1'95	99
100	769	1,645	338	661	...	1'86	100
101	431	984	198	413	...	...	101
102	233	571	111	249	...	...	102
103	122	322	61	146	...	...	103
104	61	176	31	83	...	...	104
105	30	93	16	46	...	...	105
106	14	47	8	24	...	...	106
107	6	23	3	12	...	...	107
108	3	11	2	6	...	...	108
109	1	5	1	3	...	...	109
110	...	2	...	1	...	...	110
111	...	1	...	1	...	...	111

This T. has not been reduced to a radix of 100,000 living.

Among the new cols. introduced by Dr. Farr were the following, and they are of great interest :

Mort. of Males and Females in Eng.—ENGLISH LIFE T. No. 2.

Age.	Ann. Mort. p.c. at each Age.		Males and Females Living at each Age to One Death ann.		The Living of any given Age and upwards to One Death ann.		Age.
	Males.	Females.	Males.	Females.	Males.	Females.	
0	17'815	14'370	6	7	40'36	42'04	0
1	6'753	6'246	15	16	46'95	47'36	1
2	3'675	3'742	27	27	49'20	49'38	2
3	2'498	2'608	40	38	50'03	50'25	3
4	1'851	1'928	54	52	50'28	50'56	4
5	1'356	1'418	74	71	50'21	50'53	5
6	1'005	1'044	100	96	49'89	50'25	6
7	'867	'848	115	118	49'39	49'77	7
8	'726	'704	138	142	48'81	49'19	8
9	'645	'668	155	150	48'16	48'53	9
10	'544	'512	184	195	47'47	47'86	10
11	'481	'498	208	201	46'73	47'10	11
12	'476	'496	210	202	45'95	46'33	12
13	'473	'518	211	193	45'17	45'56	13
14	'549	'596	182	168	44'38	44'79	14
15	'498	'584	201	171	43'62	44'06	15
16	'569	'748	176	134	42'84	43'31	16
17	'664	'798	151	125	42'08	42'64	17
18	'761	'812	131	123	41'35	41'97	18
19	'799	'827	125	121	40'67	41'31	19
20	'813	'841	123	119	39'99	40'65	20
21	'828	'857	121	117	39'31	39'99	21
22	'842	'873	119	115	38'63	39'33	22
23	'857	'889	117	113	37'96	38'67	23
24	'872	'906	115	110	37'28	38'01	24
25	'888	'923	113	108	36'60	37'35	25
26	'904	'941	111	106	35'92	36'69	26
27	'921	'959	109	104	35'24	36'04	27
28	'939	'978	106	102	34'57	35'38	28
29	'958	'998	104	100	33'89	34'72	29
30	'978	1'018	102	98	33'21	34'06	30
31	1'000	1'039	100	96	32'53	33'41	31
32	1'023	1'060	98	94	31'85	32'75	32
33	1'047	1'082	96	92	31'17	32'10	33
34	1'073	1'105	93	90	30'50	31'44	34
35	1'100	1'129	91	89	29'82	30'78	35
36	1'130	1'153	88	87	29'15	30'13	36
37	1'162	1'177	86	85	28'47	29'47	37
38	1'195	1'203	84	83	27'80	28'81	38
39	1'231	1'229	81	81	27'13	28'16	39
40	1'270	1'256	79	80	26'46	27'50	40
41	1'310	1'283	76	78	25'79	26'84	41
42	1'354	1'311	74	76	25'12	26'18	42
43	1'400	1'340	71	75	24'46	25'52	43
44	1'449	1'370	69	73	23'79	24'86	44
45	1'501	1'401	67	71	23'13	24'19	45
46	1'556	1'432	64	70	22'48	23'53	46
47	1'615	1'464	62	68	21'82	22'86	47
48	1'677	1'497	60	67	21'17	22'19	48
49	1'742	1'531	57	65	20'52	21'52	49
50	1'811	1'605	55	62	19'87	20'84	50
51	1'884	1'707	53	59	19'22	20'17	51
52	1'960	1'810	51	55	18'58	19'51	52
53	2'041	1'914	49	52	17'94	18'85	53
54	2'125	2'022	47	49	17'30	18'21	54
55	2'213	2'136	45	47	16'66	17'57	55
56	2'337	2'258	43	44	16'02	16'94	56
57	2'503	2'390	39	42	15'39	16'32	57
58	2'790	2'535	36	39	14'77	15'70	58
59	3'023	2'695	33	37	14'18	15'09	59
60	3'264	2'873	31	35	13'60	14'49	60

Age.	Ann. Mort. p.c. at each Age.		Males and Females Living at each Age to One Death ann.		The Living of any given Age and upwards to One Death ann.		Age.
	Males.	Females.	Males.	Females.	Males.	Females.	
61	3'517	3'071	28	33	13'03	13'89	61
62	3'785	3'291	26	30	12'48	13'31	62
63	4'071	3'535	25	28	11'94	12'74	63
64	4'380	3'807	23	26	11'42	12'18	64
65	4'713	4'107	21	24	10'90	11'63	65
66	5'075	4'440	20	23	10'41	11'10	66
67	5'469	4'806	18	21	9'92	10'58	67
68	5'897	5'209	17	19	9'45	10'08	68
69	6'364	5'650	16	18	9'00	9'59	69
70	6'872	6'132	15	16	8'55	9'12	70
71	7'426	6'658	13	15	8'13	8'67	71
72	8'027	7'230	12	14	7'72	8'23	72
73	8'681	7'849	12	13	7'32	7'81	73
74	9'389	8'518	11	12	6'94	7'40	74
75	10'155	9'241	10	11	6'57	7'02	75
76	10'983	10'018	9	10	6'22	6'65	76
77	11'876	10'852	8	9	5'89	6'30	77
78	12'837	11'746	8	9	5'57	5'96	78
79	13'870	12'701	7	8	5'26	5'65	79
80	14'977	13'720	7	7	4'97	5'34	80
81	16'163	14'805	6	7	4'70	5'06	81
82	17'431	15'957	6	6	4'44	4'79	82
83	18'784	17'181	5	6	4'19	4'53	83
84	20'226	18'476	5	5	3'96	4'29	84
85	21'761	19'845	5	5	3'74	4'06	85
86	23'390	21'290	4	5	3'53	3'84	86
87	25'120	22'814	4	4	3'33	3'64	87
88	26'953	24'417	4	4	3'14	3'44	88
89	28'893	26'101	3	4	2'97	3'26	89
90	30'944	27'869	3	4	2'80	3'09	90
91	33'109	29'719	3	3	2'65	2'93	91
92	35'393	31'655	3	3	2'50	2'78	92
93	37'804	33'680	3	3	2'36	2'64	93
94	40'338	35'788	2	3	2'23	2'51	94
95	43'016	37'984	2	3	2'11	2'38	95
96	45'805	40'271	2	2	2'00	2'26	96
97	48'766	42'661	2	2	1'89	2'15	97
98	51'837	45'136	2	2	1'79	2'05	98
99	55'091	47'685	2	2	1'69	1'95	99
100	58'474	50'266	2	2	...	1'86	100

The T. may be read thus :—To 100,000 men living of the age of 20 and under 21 there are 813 deaths ann. ; to 100,000 females living 841 deaths ann. ; or 1 in 123 men and 1 in 119 women of that age die ann. And of men of the age of 20 and upwards 1 in 39'99 die ann. ; of women of the age of 20 and upwards 1 in 40'65 dies ann. The mean after-lifetimes at these ages are 39'99 and 40'65. The mean after-lifetimes at other ages are shown by the corresponding figures.

Dr. Farr, comparing his T. No. 2 with the *Experience* and the *Carlisle T.*, says of these two latter, that they understate the *net prem.* ; in valuations they understate the *value of the sums assured*, overstate the value of the *prems.*, and consequently understate the amount of stock which an Ins. So. should have under investment to meet its engagements ; while in *Mutual Sos.* they do not furnish the means of distributing the surplus contributions or the profits so equitably as the *National [English] Life T.*

English Life T. No. 3.—This T. was pub. in 1864, in the form of a distinct work : *English Life T. : T. of Lifetimes, Annu., and Prem., with an Introduction by William Farr, M.D., F.R.S., D.C.L., pub. by Authority of the Reg.-Gen. of Births, Deaths, and Marriages in Eng.* A synopsis of the T., and the obs. which accompany it, is contained in the 28th Rep. of Reg.-Gen. (pub. 1867), and of this we shall make full use.

The T. is based upon the returns of the two censuses of 1841 and 1851, embracing some 50 millions of persons living, and upon 6,470,720 deaths regis. in 17 years 1838-54. Dr. Farr has pointed out that this T. is not deduced from the pop., or the deaths alone, *but from the ratio the one bears to the other at different ages.* Several series of the T. were calculated and printed by Scheutz's machine, of which we have already given an account [CALCULATING MACHINES]. The machine was also used to introduce the elements of int. in several of the money T.

The following T. present the data in form for reference and comparison :

Pop. of E. and W. estimated in the middle of the years 1841 and 1851.

Ages.	Persons.		Males.		Females.	
	1841.	1851.	1841.	1851.	1841.	1851.
All ages	15,929,492	17,982,849	7,784,883	8,808,662	8,144,609	9,174,187
0-	2,107,008	2,355,345	1,048,270	1,180,430	1,058,738	1,174,915
5-	1,865,856	2,098,808	953,235	1,053,510	912,621	1,045,298
10-	1,772,913	1,919,255	880,567	967,007	892,346	952,248
15-	3,145,541	3,418,488	1,511,602	1,671,634	1,633,939	1,746,854
25-	2,450,322	2,740,919	1,174,473	1,323,621	1,275,849	1,417,298
35-	1,778,737	2,089,629	875,874	1,017,018	902,863	1,072,611
45-	1,270,178	1,516,324	617,113	734,314	653,065	782,010
55-	832,692	1,010,973	399,490	482,788	433,202	528,185
65-	483,593	579,187	224,310	268,052	259,283	311,135
75-	190,443	220,618	86,736	97,008	103,707	123,610
85-	30,541	31,754	12,635	12,745	17,906	19,009
95 and upwards.	1,668	1,549	578	535	1,090	1,014

The ages are read thus : 0—, and under 5 ; 5—, and under 10 ; 10—, and under 15, etc.

Deaths Regis. in E. and W. in the 17 Years 1838-54 ; and ann. average rate of Mort. during the same period.

Ages.	DEATHS.			Ann. Average Rate of Mort.		
	Persons.	Males.	Females.	Persons.	Males.	Females.
All ages	6,470,720	3,283,255	3,187,465	·02245	·02328	·02165
0-	2,555,659	1,373,318	1,182,341	·06738	·07250	·06228
5-	308,596	157,004	151,592	·00916	·00920	·00911
10-	165,477	81,111	84,366	·00527	·00517	·00538
15-	467,406	222,420	244,986	·00838	·00822	·00853
25-	453,575	212,063	241,512	·01028	·00999	·01055
35-	419,699	206,424	213,275	·01277	·01283	·01270
45-	406,171	212,644	193,527	·01715	·01851	·01587
55-	468,814	238,699	230,115	·02992	·03183	·02816
65-	570,736	279,894	290,842	·06319	·06689	·05999
75-	490,078	230,486	259,592	·14027	·14758	·13437
85-	152,614	65,027	87,587	·28820	·30136	·27915
95 and upwards.	11,895	4,165	7,730	·43501	·44031	·43223

Dr. Farr, after explaining some of the preliminary processes employed, proceeds as follows :

The rate of mort. at each age is thus deduced from the deaths regis. at that age, and from the pop. of corresponding ages, enumerated at the censuses. Now it is generally admitted that the ages of a certain number of women are understated ; and I had to consider what correction was necessary on this ground.

The prob. extent of the error in the statements of women's ages, it was shown in the Census Rep. for 1851, is not considerable ; but as the effect of the error is not always understood, some explanation is necessary.

The English Life T. is not deduced from the pop. or from the deaths alone, but from the ratio the one bears to the other at different ages. . . . The mort., it will be observed, increases as age advances ; so that if all the women of 35 were returned as 10 years younger than they are, the mort. at the age 25 would be overstated ; the excess being ·00109. But there is less chance of women of 35 at death being returned as 25 than there is of their being so returned at the census ; and the corrective effect of this excess in the proportion of women at the census trans. to the earlier ages is apparent on inspection of the formulas below.

After stating his methods of correction, he says :

Upon comparing the female rates of mort. with those of males, and the rates of progression in the mort. of the two sexes, I have come to the conclusion, after carefully weighing the facts, that this correction is adequate ; *that the rates of mort. represent very nearly the mort. of female pop. ; and that the prob. of female life, deducible from the mort., are substantively true.*

The rates of female mort. are in singular accordance with those deducible from obs. on males ; the mort. of females being slightly higher at the ages 10 to 35 than the mort. of males at home in Eng.

We now turn to the synopsis of the T. given in the 28th Rep. of Reg.-Gen., from which we take the following passages :

The English Life T. No. 3 consists of three parts, or three Life T., each of seven columns ; the first part for persons consisting of such proportions at each age of the two sexes as are produced by the

births; the second part for males; and the third part for females. The base of the (1) T. for Persons is 1,000,000 children born alive; and as boys and girls were born in Eng. during the period of obs. in the proportion of 511,745 boys to 488,255 girls, these numbers were made respectively the basis of (2) the Male Life T., and (3) of the Female Life T.

In the Synoptical T. [constituting cols. 4 to 10 of first of following T.] the numbers of the males and females living and dying at each year of age are given as they would exist in a pop. under the law of birth and mort., found by direct observation to prevail in E. and W., undisturbed by emigration, by excess of births over deaths, or by any other element of that kind.

The males, we find, if there is no emigration, exceed the females in number in infancy, in childhood, and in manhood up to the age of 53, when the women after the age of childbearing enjoy a firmer hold on life, and die at a lower rate than the men; so that the number of women of 53 and upwards exceeds the number of men of the corresponding ages. The males are to the females of all ages as 20,426,138 to 20,432,046; thus proving decisively that the disparity in the numbers of the two sexes of the English pop. is due exclusively to emigration.

The Male and Female Life T. were constructed independently; that of the Persons was obtained by combining the other two in one.

The T. represents a generation of 1,000,000 persons, and it will be observed that in the first year 149,493 die, in the second 53,680, the numbers decreasing every year until the age of 13; 3382 die in their 14th year (13-14); after the age of puberty the deaths at each year of age increase until 15,469 die in the year 73-74. Great numbers die after that age, but the deaths at the advanced ages decrease rapidly, and 92 die at the age of 100, one at the age 108. So 100 years is the limit of age by this T.

The number of deaths decreases rapidly in each month after birth. The T. of living and the deaths at the end of each month of the first year of life is in itself interesting; it was obtained for each of the first three months directly from the returns; from the aggregate deaths in the second quarter, and in the last two quarters; so the deaths in each of the other nine months were interpolated. [MONTHLY MORT. T.]

A scientific demonstration of these several propositions, and of some others, is given; and some further propositions are laid down and similarly varied; thus (shorn of their formulæ):

The constituent individuals of a pop. are its elements; and the pop. is normal when its elements, arranged in corresponding groups, are in the same proportions as the elements of the Life T. . . .

In a normal pop. there is an indissoluble connexion between (1) the numbers living, (2) the mean lifetime, (3) the births, (4) the deaths, (5) the rate of mort., (6) the prob. duration of life. Thus by the Life T. of Persons 1,000,000 ann. births imply 1,000,000 ann. deaths; sustaining a pop. of 40,858,184, of whom 20,426,138 are males, 20,432,046 are females; half of the persons living 45 years equal to the probable lifetime; and the mean lifetime being 40.858184 or nearly 41 years; that is equal to the mean age at death; equal to the number of years of life falling to the share of the children born. To 41 persons living there is one birth, one death, ann.; the rate of mort. is 1 in 41; and 41 is the mean duration of life.

It has been shown that the rate of mort. involves three elements,—time, numbers living, numbers dying; thus, if out of 102 living men of a given age 4 die at equal intervals in the year, 98 will live to the end of the year; . . . now the years of life to be passed by the survivors in the next year will, if 4 die in the year, be 96, and thus the years of life will accumulate year by year, until the last life shall expire. All the years of life belong to the 102 men; and dividing the said years of life by 102 the mean after-lifetime is determined. Thus the units of the numbers that express living men, men dying, and years of life, are produced by men living a definite number of years and then dying. . . .

By making the time a unit (one year), and the death a unit, the variations in the numbers living, out of which 1 death occurs annually—or the relative amount of resistance to death by life is expressed—under the given conditions. One death in one year to 41 living, implies a mean lifetime of 41 years. It was shown before that 41 persons living through one year enjoy the same number of years of life as one person living 41 years.

The mean age of those who died in Eng. in the 17 years 1838-54 was 29.4; whereas the mean lifetime of children born in Eng. during the same period is 40.9 years by the Life T. This reduction of the age at death, 11.5 years below the mean lifetime, is the result of the introduction of an excess of young lives; as in addition to the 380,631 births to balance the 380,631 deaths, 191,068, making 571,699 children in the whole, were born ann. and thrown into the pop. The mean age of the dying equals the mean age to which people live in a normal pop.; but as our pop. is increasing, the mean age of the dying in a limited time is 11.5 years less than the mean lifetime. The mean age of the pop. of Eng. was 26.4 years in 1851, instead of 32.1 years; so the excess of young people reduces the age of the nation by 5.7 years, or by half the difference between the age at death (29.4) and the mean lifetime (40.9). Instead of living as long as they have lived (26.4 years), they will live about 35.6 years.

The English Life T. are principally derived from the regis. deaths, and the pop. as taken by the Censuses of 1841 and 1851. These bases have been objected to as inaccurate and defective: inaccurate, because the ages of the people are in an important degree misstated; defective, because most probably a considerable portion of the pop. is for the time out of the reach of obs., and its heavier mort., at any rate escapes regis. In these Mort. T., and in many other T. constructed on the same plan, in which the important element of the ages of the living pop. is derived entirely from the voluntary and often doubtful statement of the informant, it is contended there must always be a radical imperfection. It is further stated as the invariable tendency of persons supplying, under no particular responsibility, information of their own age, or of that of their relatives, to understate the truth where the party concerned is young or not past the middle age. On the other hand, where the person to be accounted for is old, there is a disposition to claim an exaggerated longevity. These points have not been overlooked by the Census Commissioners, and others officially concerned in such inquiries, as we shall see under FEMALES, AGES OF; and under POP. RETURNS, CORRECTIONS OF. It is not considered by these authorities that the general accuracy of the returns is seriously impeached from these causes.

We shall show presently the remarkable general unanimity of the results deduced from the three T., as applied to male lives; while the causes of such slight variations as are actually shown will be better understood by a comparison of the facts already stated with the criticisms which will be brought together at the close of the present art.

We now reach the T., and we propose to show (condensed as to arrangement of col.), all the leading new features which they contain, many of which are of great interest and value :

ENGLISH LIFE T. No. 3.—I. *Persons.*

Age.	Living.	Dying.	Numbers attaining each Year of Age to 1,000,000 born.		Pop. maintained at each Year of Age by 1,000,000 Ann. Births.			Deaths out of the same Pop. in each Year of Age.		Age.
	Persons.	Persons.	Males.	Females.	Persons.	Males.	Females.	Males.	Females.	
0	1,000,000	149,493	511,745	488,255	902,781	456,820	445,961	83,719	65,774	1
1	850,507	53,680	428,026	422,481	818,421	411,999	406,422	27,521	26,159	2
2	796,827	28,238	400,505	396,322	781,471	392,294	389,177	14,215	14,023	3
3	768,589	18,456	386,290	382,299	758,591	381,312	377,279	9,213	9,243	4
4	750,133	13,315	377,077	373,056	742,952	373,461	369,491	6,719	6,596	5
5	736,818	9,890	370,358	366,460	731,530	367,672	363,858	5,033	4,866	6
6	726,919	7,768	365,325	361,594	722,834	363,244	359,590	3,953	3,815	7
7	719,151	6,559	361,372	357,779	715,716	359,635	356,081	3,310	3,249	8
8	712,592	5,458	358,062	354,530	709,743	356,632	353,111	2,734	2,724	9
9	707,134	4,625	355,328	351,806	704,733	354,133	350,600	2,207	2,238	10
10	702,509	4,028	353,031	349,478	700,433	352,007	348,426	1,983	2,045	11
11	698,481	3,637	351,048	347,433	696,626	350,141	346,485	1,766	1,861	12
12	694,844	3,431	349,272	345,572	693,113	348,431	344,682	1,637	1,745	13
13	691,413	3,382	347,606	343,807	689,725	346,789	342,936	1,679	1,789	14
14	688,031	3,468	345,969	342,062	686,316	345,139	341,177	1,781	1,888	15
15	684,563	3,669	344,290	340,273	682,759	343,415	339,344	1,928	2,029	16
16	680,894	3,957	342,509	338,385	678,956	341,566	337,390	2,112	2,205	17
17	676,937	4,317	340,581	336,356	674,827	339,550	335,277	2,320	2,400	18
18	672,620	4,720	338,469	334,151	670,313	337,336	332,977	2,541	2,609	19
19	667,900	5,150	336,149	331,751	665,379	334,906	330,473	2,801	2,867	20
20	662,750	5,583	333,608	329,142	659,970	332,431	327,739	3,009	3,112	21
21	657,167	5,668	330,844	326,323	654,343	329,448	324,895	3,038	3,138	22
22	651,490	5,748	328,043	323,456	648,634	326,629	322,005	3,068	3,163	23
23	645,751	5,820	325,207	320,544	642,850	323,777	319,073	3,096	3,191	24
24	639,931	5,886	322,339	317,592	636,996	320,894	316,102	3,126	3,221	25
25	634,045	5,950	319,442	314,603	631,077	317,982	313,095	3,156	3,251	26
26	628,095	6,009	316,516	311,579	625,098	315,042	310,056	3,186	3,281	27
27	622,086	6,065	313,562	308,524	619,060	312,075	306,985	3,216	3,311	28
28	616,021	6,121	310,581	305,440	612,967	309,080	303,887	3,246	3,341	29
29	609,900	6,176	307,572	302,328	606,819	306,057	300,767	3,276	3,371	30
30	603,724	6,231	304,534	299,190	600,615	303,004	297,611	3,306	3,401	31
31	597,493	6,287	301,466	296,027	594,357	299,920	294,437	3,336	3,431	32
32	591,206	6,343	298,366	292,840	588,042	296,804	291,238	3,366	3,461	33
33	584,863	6,404	295,232	289,631	581,668	293,651	288,077	3,396	3,491	34
34	578,459	6,466	292,061	286,398	575,234	290,461	284,773	3,426	3,521	35
35	571,993	6,533	288,850	283,143	568,735	287,229	281,506	3,456	3,551	36
36	565,460	6,601	285,596	279,864	562,168	283,952	278,216	3,486	3,581	37
37	558,859	6,678	282,296	276,563	555,529	280,626	274,903	3,516	3,611	38
38	552,181	6,756	278,944	273,237	548,813	277,248	271,505	3,546	3,641	39
39	545,425	6,841	275,538	269,887	542,015	273,813	268,020	3,576	3,671	40
40	538,584	6,931	272,073	266,511	535,130	270,317	264,813	3,606	3,701	41
41	531,653	7,027	268,544	263,109	528,152	266,755	261,397	3,636	3,731	42
42	524,626	7,127	264,948	259,678	521,075	263,123	257,952	3,666	3,761	43
43	517,499	7,236	261,280	256,219	513,895	259,417	254,478	3,696	3,791	44
44	510,263	7,348	257,534	252,729	506,604	255,632	250,972	3,726	3,821	45
45	502,915	7,467	253,708	249,207	499,197	251,763	247,434	3,756	3,851	46
46	495,448	7,592	249,796	245,652	491,668	247,807	243,801	3,786	3,881	47
47	487,856	7,722	245,795	242,061	484,011	243,759	240,252	3,816	3,911	48
48	480,134	7,857	241,700	238,434	476,223	239,617	236,606	3,846	3,941	49
49	472,277	7,997	237,508	234,769	468,297	235,375	232,922	3,876	3,971	50
50	464,280	8,141	233,216	231,064	460,228	231,032	229,196	3,906	4,001	51
51	456,139	8,414	228,821	227,318	451,955	226,525	225,430	3,936	4,031	52
52	447,725	8,590	224,195	223,530	443,452	221,832	221,620	3,966	4,061	53
53	439,135	8,761	219,437	219,098	434,776	217,010	217,766	3,996	4,091	54
54	430,374	9,259	214,552	215,822	425,784	212,061	213,723	4,026	4,121	55
55	421,115	9,583	209,539	211,576	416,364	206,984	209,380	4,056	4,151	56
56	411,532	9,909	204,395	207,137	406,619	201,772	204,847	4,086	4,181	57
57	401,623	10,245	199,114	202,509	396,543	196,914	200,124	4,116	4,211	58
58	391,378	10,593	193,686	197,692	386,125	190,914	195,211	4,146	4,241	59
59	380,785	10,958	188,102	192,683	375,353	185,248	190,105	4,176	4,271	60
60	369,827	11,338	182,350	187,477	364,207	179,409	184,798	4,206	4,301	61
61	358,489	11,737	176,421	182,068	352,671	173,386	179,285	4,236	4,331	62
62	346,752	12,149	170,303	176,449	340,730	167,171	173,559	4,266	4,361	63
63	334,603	12,572	163,989	170,614	328,371	160,757	167,614	4,296	4,391	64
64	322,031	13,002	157,474	164,557	315,583	154,139	161,444	4,326	4,421	65
65	309,029	13,430	150,754	158,275	302,368	147,319	155,040	4,356	4,451	66
66	295,599	13,846	143,833	151,766	288,727	140,299	148,428	4,386	4,481	67
67	281,753	14,244	136,718	145,035	274,679	133,091	141,588	4,416	4,511	68
68	267,509	14,607	129,421	138,088	260,249	125,711	134,538	4,446	4,541	69
69	252,902	14,925	121,963	130,399	245,476	118,181	127,295	4,476	4,571	70
70	237,977	15,184	114,370	123,607	230,474	110,533	119,881	4,506	4,601	71
71	222,793	15,460	106,675	116,118	215,127	102,802	112,325	4,536	4,631	72
72	207,424	15,668	98,919	108,505	199,697	95,033	104,664	4,566	4,661	73
73	191,956	15,860	91,149	100,807	184,215	87,274	96,941	4,596	4,691	74
74	176,487	15,363	83,416	93,071	168,785	79,581	89,204	4,626	4,721	75
75	161,124	15,136	75,777	85,347	153,520	72,012	81,508	4,656	4,751	76
76	145,988	14,789	68,294	77,694	138,542	64,629	73,913	4,686	4,781	77

Age.	Living.	Dying.	Numbers attaining each Year of Age to 1,000,000 born.		Pop. maintained at each Year of Age by 1,000,000 Ann. Births.			Deaths out of the same Pop. in each Year of Age.		Age.
	Persons.	Persons.	Males.	Females.	Persons.	Males.	Females.	Males.	Females.	
77	131,109	14,319	61,026	70,173	123,973	57,493	66,480	6,990	7,329	77
78	116,880	13,726	54,036	62,844	109,936	50,663	59,273	6,655	7,071	78
79	103,154	13,021	47,381	55,773	96,548	44,196	52,352	6,266	6,755	79
80	90,133	12,214	41,115	49,018	83,919	38,142	45,777	5,832	6,382	80
81	77,919	11,320	35,283	42,636	72,143	32,542	39,601	5,361	5,959	81
82	66,599	10,358	29,922	36,677	61,297	27,428	33,869	4,862	5,496	82
83	56,241	9,352	25,060	31,181	51,437	22,821	28,616	4,349	5,003	83
84	46,889	8,324	20,711	26,178	42,597	18,729	23,868	3,834	4,490	84
85	38,565	7,300	16,877	21,688	34,788	15,151	19,637	3,328	3,972	85
86	31,265	6,298	13,549	17,716	27,994	12,070	15,924	2,840	3,458	86
87	24,967	5,346	10,709	14,258	22,179	9,462	12,717	2,384	2,962	87
88	19,621	4,459	8,325	11,296	17,284	7,292	9,992	1,995	2,494	88
89	15,162	3,653	6,360	8,802	13,240	5,521	7,719	1,590	2,063	89
90	11,509	2,933	4,770	6,739	9,959	4,102	5,857	1,260	1,673	90
91	8,576	2,310	3,510	5,066	7,349	2,988	4,361	979	1,331	91
92	6,266	1,781	2,531	3,735	5,315	2,132	3,183	744	1,037	92
93	4,485	1,343	1,787	2,698	3,764	1,489	2,275	553	790	93
94	3,142	989	1,234	1,908	2,609	1,017	1,592	401	588	94
95	2,153	713	833	1,320	1,766	678	1,088	285	428	95
96	1,440	500	548	892	1,167	441	726	196	304	96
97	940	342	352	588	752	279	473	132	210	97
98	598	228	220	378	472	172	300	86	142	98
99	370	147	134	236	288	103	185	55	92	99
100	223	92	79	144	171	60	111	33	59	100
101	131	57	46	85	99	34	65	21	36	101
102	74	33	25	49	56	19	37	11	22	102
103	41	19	14	27	30	10	20	7	12	103
104	22	10	7	15	16	5	11	3	7	104
105	12	6	4	8	8	3	5	2	4	105
106	6	3	2	4	4	1	3	1	2	106
107	3	2	1	2	2	1	1	1	1	107
108	1	1	...	1	1	...	1	...	1	108
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II. Males.

Age.	Living.	Dying.	Ann. Mort. p.c. at each Age.	Living at each Age to 1 death ann.	Living at each Age and upwards to 1 death ann.	Mean After-life-time at each age (Expectation).	Mean After-life-time at each Age and upwards.	Mean Age of Males living at each Age and upwards.	Mean Age at death of Males actually living at each Age.	Mean Age at death of Males actually living at each Age and upwards.	Age or past Lifetime.
						Years.	Years.	Years.	Years.	Years.	
0	511,745	83719	18.326	5	39.91	39.91	31.77	39.91	63.54	63.54	0
1	428,026	27521	6.680	15	46.05	46.05	31.49	47.65	63.98	63.98	1
2	400,505	14215	3.624	28	48.83	48.83	31.14	50.83	64.28	64.28	2
3	386,290	9213	2.416	41	49.61	49.61	30.77	52.61	64.54	64.54	3
4	377,077	6719	1.799	56	49.81	49.81	30.38	53.81	64.76	64.76	4
5	370,358	5033	1.369	73	49.71	49.71	29.99	54.79	64.98	64.98	5
6	365,325	3953	1.088	92	49.39	49.39	29.59	55.39	65.18	65.18	6
7	361,372	3310	.920	109	48.92	48.92	29.19	55.92	65.38	65.38	7
8	358,062	2734	.767	130	48.37	48.37	28.78	56.37	65.56	65.56	8
9	355,328	2297	.649	154	47.74	47.74	28.38	56.74	65.76	65.76	9
10	353,031	1983	.563	178	47.05	47.05	27.97	57.05	65.94	65.94	10
11	351,048	1776	.507	197	46.31	46.31	27.56	57.31	66.12	66.12	11
12	349,272	1666	.478	209	45.54	45.54	27.16	57.54	66.32	66.32	12
13	347,606	1637	.472	212	44.76	44.76	26.76	57.76	66.52	66.52	13
14	345,969	1679	.486	206	43.97	43.97	26.36	57.97	66.72	66.72	14
15	344,290	1781	.519	193	43.18	43.18	25.96	58.18	66.92	66.92	15
16	342,509	1928	.564	177	42.40	42.40	25.56	58.40	67.12	67.12	16
17	340,581	2112	.622	161	41.64	41.64	25.16	58.64	67.32	67.32	17
18	338,469	2320	.688	145	40.90	40.90	24.77	58.90	67.54	67.54	18
19	336,149	2541	.759	132	40.17	40.17	24.37	59.17	67.74	67.74	19
20	333,608	2764	.832	120	39.48	39.48	23.98	59.48	67.96	67.96	20
21	330,844	2801	.850	118	38.80	38.80	23.59	59.80	68.18	68.18	21
22	328,043	2836	.868	115	38.13	38.13	23.20	60.13	68.40	68.40	22
23	325,207	2868	.886	113	37.46	37.46	22.80	60.46	68.60	68.60	23
24	322,339	2897	.903	111	36.79	36.79	22.41	60.79	68.82	68.82	24
25	319,442	2926	.920	109	36.12	36.12	22.02	61.12	69.04	69.04	25
26	316,516	2954	.938	107	35.44	35.44	21.63	61.44	69.26	69.26	26
27	313,562	2981	.955	105	34.77	34.77	21.24	61.77	69.48	69.48	27
28	310,581	3009	.974	103	34.10	34.10	20.86	62.10	69.72	69.72	28
29	307,572	3038	.993	101	33.43	33.43	20.47	62.43	69.94	69.94	29
30	304,534	3068	1.013	99	32.76	32.76	20.08	62.76	70.16	70.16	30
31	301,466	3100	1.034	97	32.09	32.09	19.69	63.09	70.38	70.38	31
32	298,366	3134	1.056	95	31.42	31.42	19.31	63.42	70.62	70.62	32
33	295,232	3171	1.080	93	30.74	30.74	18.92	63.74	70.84	70.84	33

Age.	Living.	Dying.	Ann. Mort. p.c. at each Age.	Living at each Age to 1 death ann.	Living at each Age and upwards to 1 death ann.	Mean After-life- time at each age (Expectation).	Mean After-life- time at each Age and upwards.	Mean Age of Males living at each Age and upwards.	Mean Age at death		Age (or past Lifetime).
									of Males actually living at each Age.	of Males actually living at each Age and upwards.	
						Years.	Years.	Years.	Years.	Years.	
34	292,061	3211	1'105	99	30'07	30'07	18'54	52'54	64'07	71'08	34
35	288,850	3254	1'133	88	29'40	29'40	18'15	53'15	64'40	71'30	35
36	285,596	3300	1'162	86	28'73	28'73	17'77	53'77	64'73	71'54	36
37	282,296	3352	1'194	84	28'06	28'06	17'39	54'39	65'06	71'78	37
38	278,944	3406	1'229	81	27'39	27'39	17'01	55'01	65'39	72'02	38
39	275,538	3465	1'265	79	26'72	26'72	16'63	55'63	65'72	72'26	39
40	272,073	3529	1'306	77	26'06	26'06	16'26	56'26	66'06	72'52	40
41	268,544	3596	1'348	74	25'39	25'39	15'88	56'88	66'39	72'76	41
42	264,948	3668	1'394	72	24'73	24'73	15'51	57'51	66'73	73'02	42
43	261,280	3746	1'444	69	24'07	24'07	15'14	58'14	67'07	73'28	43
44	257,534	3826	1'497	67	23'41	23'41	14'77	58'77	67'41	73'54	44
45	253,708	3912	1'554	64	22'76	22'76	14'40	59'40	67'76	73'80	45
46	249,796	4001	1'615	62	22'11	22'11	14'03	60'03	68'11	74'06	46
47	245,795	4095	1'680	60	21'46	21'46	13'67	60'67	68'46	74'34	47
48	241,700	4192	1'749	57	20'82	20'82	13'30	61'30	68'82	74'60	48
49	237,508	4292	1'823	55	20'17	20'17	12'94	61'94	69'17	74'88	49
50	233,216	4395	1'902	53	19'54	19'54	12'59	62'59	69'54	75'18	50
51	228,821	4626	2'042	49	18'90	18'90	12'23	63'23	69'90	75'46	51
52	224,195	4758	2'145	47	18'28	18'28	11'88	63'88	70'28	75'76	52
53	219,437	4885	2'251	44	17'67	17'67	11'53	64'53	70'67	76'06	53
54	214,552	5013	2'364	42	17'06	17'06	11'19	65'19	71'06	76'38	54
55	209,539	5144	2'485	40	16'45	16'45	10'84	65'84	71'45	76'68	55
56	204,395	5287	2'617	38	15'80	15'80	10'51	66'51	71'86	77'02	56
57	199,114	5428	2'763	36	15'26	15'26	10'17	67'17	72'26	77'34	57
58	193,686	5584	2'925	34	14'68	14'68	9'84	67'84	72'68	77'68	58
59	188,102	5752	3'105	32	14'10	14'10	9'51	68'51	73'10	78'02	59
60	182,350	5929	3'305	30	13'53	13'53	9'19	69'19	73'53	78'38	60
61	176,421	6118	3'529	28	12'96	12'96	8'87	69'87	73'96	78'74	61
62	170,303	6314	3'777	26	12'41	12'41	8'55	70'55	74'41	79'10	62
63	163,989	6515	4'053	25	11'87	11'87	8'25	71'25	74'87	79'50	63
64	157,474	6720	4'360	23	11'34	11'34	7'94	71'94	75'34	79'88	64
65	150,754	6921	4'698	21	10'82	10'82	7'65	72'65	75'82	80'30	65
66	143,833	7115	5'071	20	10'32	10'32	7'36	73'36	76'32	80'72	66
67	136,718	7297	5'483	18	9'83	9'83	7'07	74'07	76'83	81'14	67
68	129,421	7458	5'933	17	9'36	9'36	6'79	74'79	77'36	81'58	68
69	121,963	7593	6'425	16	8'90	8'90	6'52	75'52	77'90	82'04	69
70	114,370	7695	6'962	14	8'45	8'45	6'26	76'26	78'45	82'52	70
71	106,675	7756	7'545	13	8'03	8'03	6'00	77'00	79'03	83'00	71
72	98,919	7770	8'176	12	7'62	7'62	5'75	77'75	79'62	83'50	72
73	91,149	7733	8'861	11	7'22	7'22	5'51	78'51	80'22	84'02	73
74	83,416	7639	9'590	10	6'85	6'85	5'28	79'28	80'85	84'56	74
75	75,777	7483	10'391	10	6'49	6'49	5'05	80'05	81'49	85'10	75
76	68,294	7268	11'246	9	6'15	6'15	4'83	80'83	82'15	85'66	76
77	61,026	6990	12'158	8	5'82	5'82	4'62	81'62	82'82	86'24	77
78	54,036	6655	13'136	7	5'51	5'51	4'42	82'42	83'51	86'84	78
79	47,381	6266	14'178	7	5'21	5'21	4'22	83'22	84'21	87'44	79
80	41,115	5832	15'290	7	4'93	4'93	4'03	84'03	84'93	88'06	80
81	35,283	5361	16'474	6	4'66	4'66	3'85	84'85	85'66	88'70	81
82	29,922	4862	17'726	6	4'41	4'41	3'68	85'68	86'41	89'36	82
83	25,060	4349	19'057	5	4'17	4'17	3'51	86'51	87'17	90'02	83
84	20,711	3834	20'471	5	3'95	3'95	3'35	87'35	87'95	90'70	84
85	16,877	3328	21'966	5	3'73	3'73	3'20	88'20	88'73	91'40	85
86	13,549	2840	23'529	4	3'53	3'53	3'05	89'05	89'53	92'10	86
87	10,709	2384	25'196	4	3'34	3'34	2'92	89'92	90'34	92'84	87
88	8,325	1905	26'947	4	3'16	3'16	2'78	90'78	91'16	93'56	88
89	6,360	1590	28'799	3	3'00	3'00	2'66	91'66	92'00	94'32	89
90	4,770	1260	30'717	3	2'84	2'84	2'54	92'54	92'84	95'08	90
91	3,510	979	32'764	3	2'69	2'69	2'42	93'42	93'69	95'84	91
92	2,531	744	34'897	3	2'55	2'55	2'31	94'31	94'55	96'62	92
93	1,787	553	37'139	3	2'41	2'41	2'21	95'21	95'41	97'42	93
94	1,234	401	39'430	3	2'29	2'29	2'11	96'11	96'29	98'22	94
95	833	285	42'035	2	2'17	2'17	2'02	97'02	97'17	99'04	95
96	548	196	44'444	2	2'06	2'06	1'93	97'93	98'06	99'86	96
97	352	132	47'312	2	1'95	1'95	1'85	98'85	98'95	100'70	97
98	220	86	50'000	2	1'85	1'85	1'77	99'77	99'85	101'54	98
99	134	55	53'398	2	1'76	1'76	1'70	100'70	100'76	102'40	99
100	79	33	55'000	2	1'68	1'68	1'62	101'62	101'68	103'24	100
101	46	21	...	...	...	...	...	...	...	...	...
102	25	11	...	...	...	...	...	...	...	...	...
103	14	7	...	...	...	...	...	...	...	...	...
104	7	3	...	...	...	...	...	...	...	...	...
105	4	2	...	...	...	...	...	...	...	...	...
106	2	1	...	...	...	...	...	...	...	...	...
107	1	1	...	...	...	...	...	...	...	...	...
108	...	...	...	...	...	...	...	...	...	...	...
109	...	...	...	...	...	...	...	...	...	...	...

The reader will observe that the 2nd col. of this T., and the 2nd col. of the following T., correspond with cols. 4 and 5 respectively of the T. given on pp. 528 and 529.

III. Females.

Age.	Living.	Dying.	Ann. Mort. p.c. at each Age.	Living at each Age to 1 death ann.	Living at each Age and upwards to 1 death ann.	Mean After-life- time at each Age (Expectation).	Mean After-life- time at each Age and upwards.	Mean Age of Females living at each Age and upwards.	Mean Age at death		Age (or past Lifetime).
									of Females actually living at each Age.	of Females actually living at each Age and upwards.	
						Years.	Years.	Years.	Years.	Years.	
0	488,255	65,774	14.749	7	41.85	41.85	32.33	32.33	41.85	64.66	0
1	422,481	20,159	6.436	16	47.31	47.31	32.04	32.04	48.31	65.08	1
2	396,322	14,023	3.603	28	49.40	49.40	31.70	31.70	51.40	65.40	2
3	382,299	9,243	2.453	41	50.20	50.20	31.33	31.33	53.20	65.66	3
4	373,056	6,595	1.785	56	50.43	50.43	30.95	30.95	54.43	65.90	4
5	366,460	4,866	1.337	75	50.33	50.33	30.56	30.56	55.33	66.12	5
6	361,594	3,815	1.061	94	50.00	50.00	30.16	30.16	56.00	66.32	6
7	357,779	3,249	.912	110	49.53	49.53	29.76	29.76	56.53	66.52	7
8	354,530	2,724	.771	130	48.98	48.98	29.36	29.36	56.98	66.72	8
9	351,806	2,328	.664	151	48.35	48.35	28.96	28.96	57.35	66.92	9
10	349,478	2,045	.587	170	47.67	47.67	28.56	28.56	57.67	67.12	10
11	347,433	1,861	.512	186	46.95	46.95	28.16	28.16	57.95	67.32	11
12	345,572	1,765	.512	195	46.20	46.20	27.76	27.76	58.20	67.52	12
13	343,807	1,745	.509	196	45.44	45.44	27.36	27.36	58.44	67.72	13
14	342,062	1,789	.524	191	44.66	44.66	26.96	26.96	58.66	67.92	14
15	340,273	1,888	.556	186	43.90	43.90	26.57	26.57	58.90	68.14	15
16	338,385	2,029	.601	180	43.14	43.14	26.18	26.18	59.14	68.36	16
17	336,350	2,205	.658	152	42.40	42.40	25.78	25.78	59.40	68.56	17
18	334,151	2,400	.721	139	41.67	41.67	25.39	25.39	59.67	68.78	18
19	331,751	2,609	.789	127	40.97	40.97	24.99	24.99	59.97	69.00	19
20	329,142	2,819	.860	116	40.29	40.29	24.61	24.61	60.29	69.22	20
21	326,323	2,867	.882	113	39.63	39.63	24.22	24.22	60.63	69.44	21
22	323,456	2,912	.904	111	38.98	38.98	23.83	23.83	61.08	69.66	22
23	320,544	2,952	.925	108	38.33	38.33	23.45	23.45	61.33	69.90	23
24	317,592	2,989	.946	106	37.68	37.68	23.06	23.06	61.68	70.12	24
25	314,603	3,024	.966	104	37.04	37.04	22.67	22.67	62.04	70.34	25
26	311,579	3,055	.985	102	36.39	36.39	22.28	22.28	62.39	70.56	26
27	308,524	3,085	1.005	100	35.75	35.75	21.89	21.89	62.75	70.78	27
28	305,440	3,112	1.024	98	35.10	35.10	21.51	21.51	63.10	71.02	28
29	302,340	3,138	1.043	96	34.46	34.46	21.12	21.12	63.46	71.24	29
30	299,190	3,163	1.063	94	33.81	33.81	20.73	20.73	63.81	71.46	30
31	296,027	3,187	1.082	92	33.17	33.17	20.35	20.35	64.17	71.70	31
32	292,840	3,209	1.102	91	32.53	32.53	19.96	19.96	64.53	71.92	32
33	289,631	3,233	1.123	89	31.88	31.88	19.57	19.57	64.88	72.14	33
34	286,398	3,255	1.143	87	31.23	31.23	19.19	19.19	65.23	72.36	34
35	283,143	3,279	1.165	86	30.59	30.59	18.80	18.80	65.59	72.60	35
36	279,864	3,301	1.186	84	29.94	29.94	18.42	18.42	65.94	72.84	36
37	276,563	3,326	1.210	82	29.29	29.29	18.03	18.03	66.29	73.06	37
38	273,237	3,350	1.234	81	28.64	28.64	17.65	17.65	66.64	73.30	38
39	269,887	3,376	1.259	79	27.99	27.99	17.26	17.26	66.99	73.52	39
40	266,511	3,402	1.285	78	27.34	27.34	16.88	16.88	67.34	73.76	40
41	263,109	3,431	1.313	75	26.69	26.69	16.50	16.50	67.69	74.00	41
42	259,678	3,459	1.341	73	26.03	26.03	16.12	16.12	68.03	74.24	42
43	256,219	3,490	1.371	71	25.38	25.38	15.74	15.74	68.38	74.48	43
44	252,729	3,522	1.403	71	24.72	24.72	15.36	15.36	68.72	74.72	44
45	249,207	3,555	1.437	70	24.06	24.06	14.98	14.98	69.06	74.96	45
46	245,652	3,591	1.473	68	23.40	23.40	14.60	14.60	69.40	75.20	46
47	242,061	3,627	1.510	66	22.74	22.74	14.23	14.23	69.74	75.46	47
48	238,439	3,665	1.549	65	22.08	22.08	13.85	13.85	70.08	75.70	48
49	234,794	3,705	1.591	63	21.42	21.42	13.48	13.48	70.42	75.96	49
50	231,064	3,746	1.634	61	20.75	20.75	13.11	13.11	70.75	76.22	50
51	227,318	3,788	1.680	60	20.09	20.09	12.75	12.75	71.09	76.50	51
52	223,530	3,832	1.729	58	19.42	19.42	12.38	12.38	71.42	76.76	52
53	219,698	3,876	1.780	56	18.75	18.75	12.02	12.02	71.75	77.04	53
54	215,822	3,921	1.833	55	18.08	18.08	11.66	11.66	72.08	77.32	54
55	211,906	4,439	2.120	47	17.43	17.43	11.31	11.31	72.43	77.62	55
56	207,137	4,628	2.259	44	16.79	16.79	10.96	10.96	72.79	77.92	56
57	202,509	4,817	2.407	42	16.17	16.17	10.62	10.62	73.17	78.24	57
58	197,692	5,009	2.566	39	15.55	15.55	10.28	10.28	73.55	78.56	58
59	192,683	5,206	2.738	37	14.94	14.94	9.94	9.94	73.94	78.88	59
60	187,477	5,409	2.927	34	14.34	14.34	9.61	9.61	74.34	79.22	60
61	182,068	5,619	3.134	32	13.75	13.75	9.28	9.28	74.75	79.56	61
62	176,449	5,835	3.362	30	13.17	13.17	8.96	8.96	75.17	79.92	62
63	170,614	6,057	3.614	28	12.60	12.60	8.64	8.64	75.60	80.28	63
64	164,557	6,282	3.891	26	12.05	12.05	8.33	8.33	76.05	80.66	64
65	158,275	6,509	4.198	24	11.51	11.51	8.02	8.02	76.51	81.04	65
66	151,766	6,731	4.535	22	10.98	10.98	7.72	7.72	76.98	81.44	66
67	145,035	6,947	4.906	20	10.47	10.47	7.42	7.42	77.47	81.84	67
68	138,088	7,149	5.314	19	9.97	9.97	7.14	7.14	77.97	82.24	68
69	130,939	7,332	5.760	17	9.48	9.48	6.86	6.86	78.48	82.72	69
70	123,607	7,489	6.247	16	9.02	9.02	6.58	6.58	79.02	83.16	70
71	116,118	7,613	6.778	15	8.57	8.57	6.32	6.32	79.57	83.64	71
72	108,505	7,698	7.355	14	8.13	8.13	6.06	6.06	80.13	84.12	72
73	100,807	7,736	7.980	13	7.71	7.71	5.80	5.80	80.71	84.60	73
74	93,071	7,724	8.659	12	7.31	7.31	5.56	5.56	81.31	85.12	74
75	85,347	7,653	9.389	11	6.93	6.93	5.32	5.32	81.93	85.64	75
76	77,694	7,521	10.175	10	6.56	6.56	5.09	5.09	82.56	86.18	76
77	70,173	7,329	11.024	9	6.21	6.21	4.87	4.87	83.21	86.74	77
78	62,844	7,071	11.930	8	5.88	5.88	4.66	4.66	83.88	87.32	78

Age.	Living.	Dying.	Ann. Mort. p.c. at each Age.	Living at each Age to 1 death ann.	Living at each Age and upwards to 1 death ann.	Mean After-life- time at each Age (Expectation).	Mean After-life- time at each Age and upwards.	Mean Age of Females living at each Age and upwards.	Mean Age at death of Females actually living at each Age.	Mean Age at death of Females actually living at each Age and upwards.	Age (or past Lifetime).
						Years.	Years.	Years.	Years.	Years.	
79	55,773	6755	12'903	8	5'56	5'56	4'45	83'45	84'56	87'90	79
80	49,018	6382	13'942	7	5'26	5'26	4'25	84'25	85'26	88'50	80
81	42,636	5959	15'048	7	4'98	4'98	4'06	85'06	85'98	89'12	81
82	36,677	5496	16'227	6	4'71	4'71	3'88	85'88	86'71	89'76	82
83	31,181	5003	17'483	6	4'45	4'45	3'70	86'70	87'45	90'40	83
84	26,178	4490	18'812	5	4'21	4'21	3'53	87'53	88'21	91'06	84
85	21,688	3972	20'227	5	3'98	3'98	3'37	88'37	88'98	91'74	85
86	17,716	3458	21'716	5	3'76	3'76	3'22	89'22	89'76	92'44	86
87	14,258	2962	23'292	4	3'56	3'56	3'07	90'07	90'56	93'14	87
88	11,296	2494	24'960	4	3'36	3'36	2'93	90'93	91'36	93'86	88
89	8,802	2063	26'726	4	3'18	3'18	2'79	91'79	92'18	94'58	89
90	6,739	1673	28'564	4	3'01	3'01	2'66	92'66	93'01	95'32	90
91	5,066	1331	30'521	3	2'85	2'85	2'54	93'54	93'85	96'08	91
92	3,735	1037	32'579	3	2'70	2'70	2'43	94'43	94'70	96'86	92
93	2,698	790	34'725	3	2'55	2'55	2'32	95'32	95'55	97'64	93
94	1,908	588	36'935	3	2'42	2'42	2'21	96'21	96'42	98'42	94
95	1,320	428	39'338	3	2'29	2'29	2'11	97'11	97'29	99'22	95
96	892	304	41'873	2	2'17	2'17	2'02	98'02	98'17	100'04	96
97	588	210	44'397	2	2'06	2'06	1'93	98'93	99'06	100'86	97
98	378	142	47'333	2	1'96	1'96	1'84	99'84	99'96	101'68	98
99	236	92	49'730	2	1'86	1'86	1'76	100'76	100'86	102'52	99
100	144	59	53'153	2	1'76	1'76	1'69	101'69	101'76	103'38	100
101	85	36	...	...	...	...	...	...	...	...	101
102	49	22	...	...	...	...	...	...	...	...	102
103	27	12	...	...	...	...	...	...	...	...	103
104	15	7	...	...	...	...	...	...	...	...	104
105	8	4	...	...	...	...	...	...	...	...	105
106	4	2	...	...	...	...	...	...	...	...	106
107	2	1	...	...	...	...	...	...	...	...	107
108	1	1	...	...	...	...	...	...	...	...	108
109	...	...	...	...	...	...	...	...	...	...	109

The following is a brief comparison of the main results of the three English T. for Males—money values at 3 p.c.

Ages.	0	10	20	30	40	50	60	70
<i>Expectation of Life.</i>	Years.	Years.	Years.	Years.	Years.	Years.	Years.	Years.
Eng. T. No. 1.	40'17	47'08	39'88	33'13	26'57	20'03	13'59	8'52
Eng. T. No. 2.	40'36	47'47	39'99	33'21	26'46	19'87	13'60	8'55
Eng. T. No. 3.	39'91	47'05	39'48	32'76	26'06	19'54	13'53	8'44
<i>Ann. prem. to ins.</i> £100.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Eng. T. No. 1.	2 5 10	1 5 0	1 11 11	2 1 1	2 14 7	3 17 6	6 2 7	10 3 2
Eng. T. No. 2.	2 5 7	1 4 5	1 11 8	2 0 9	2 14 11	3 18 6	6 2 7	10 2 0
Eng. T. No. 3.	2 6 2	1 4 8	1 12 5	2 1 8	2 16 2	4 0 4	6 3 3	10 4 7
<i>Present Value of an Annu. payable at end of every year.</i>	£	£	£	£	£	£	£	£
Eng. T. No. 1.	18'2167	23'0333	21'1765	19'1347	16'7209	13'7365	10'0598	6'6516
Eng. T. No. 2.	18'2660	23'2042	21'2334	19'1943	16'6689	13'6272	10'0572	6'6837
Eng. T. No. 3.	19'1506	24'1071	22'0612	20'1043	17'4744	14'4242	11'0176	7'6100

We now propose to pass in review the criticisms which have been offered by various writers on the preceding T. The dates will in a great measure determine the particular table or tables referred to.

Mr. E. J. Farren stated before the Select Parl. Com. on Assu. Asso. (1853):—"For mixed lives I consider there are none equal to Mr. Farr's T." And again: "I consider he is the only man who has paid attention to the science of the subject for many years."

By the 17 & 18 Vict. c. 116 (1854)—*An Act to continue and amend an Act to facilitate the man. and improvement of Episcopal and Capitular Estates in England*—it is enacted:

XII.—In all computations in any way dependent on the duration of lives, the exp. of life shall not be calculated according to the T. commonly known as the *Northampton T.*, nor upon T. less favourable to the exp. of life than the Life T. which are appended to the 12th Ann. Rep. of the Reg.-Gen. [*English T. No. 2*], nor than any T. which may be from time to time issued by the same authority.

In the same year there was "printed for the Ecclesiastical Commissioners for Eng. and the Church Estates Commissioners," *Tables of the Values of Annu. on Single and Joint*

Lives, at £3 6s. 8d. p.c. p.a., deduced from the Tables of the Duration of Life appended to the 12th Ann. Rep. of Reg.-Gen. of Births, Deaths, and Marriages in Eng.

Mr. W. T. Thomson, in "Proof Sheets" of art. *Life Assu.* for *Encyclo. Brit.* 1856, says regarding *English T. No. 1* :

We have had occasion to use these results extensively, having adopted them as the basis of some most important calculations, and as, before adopting them, we made them our particular study, we now refer to them with much satisfaction, as tables well suited as a basis for life assu. transactions. They are graduated so as to give them a preference over the *Carlisle obs.*

Mr. H. W. Porter, B.A., said, 1860 :

The *English Life T.* constructed by Dr. Farr from the returns of the Reg.-Gen. shows the mort. in E. and W. generally; and since the greater portion of assu. that are effected are upon lives of persons resident within these limits, and since it is constructed, probably, upon the very best data that could be procured, it seems peculiarly suitable for the basis of the scale of prem. of a life assu. co.

Mr. A. G. Finlaison, in his *Rep. on Tontines and Life Annu.* 1860, said of these T. :

Much authority has been claimed for them on the score of their deduction from very vast constituent elements; but from the following considerations it does not appear to me that their value for any other practical purpose goes beyond that of comparison. . . . These computations have been recommended as a basis for military and political statistics, as serviceable to Friendly Societies, as of use for the valuation of life interests, and for the sale of life annuities; and as serviceable in the guidance of L. assu. sos. It is evident, however, that these T. cannot be equally applicable to all these objects. For example, their employment for the purposes of L. assu. seems scarcely compatible with their use in the sale of life annu., for reasons already stated in these pages. Indeed, their application to the regulation of the engagements of any L. assu. co. would hardly be advisable with due regard to the interests of either the shareholders or the assured themselves collectively considered.

"But," he continues, "as low scales of prem. or low prices for L. annu. (the sale of which supplies a ready means of raising cap.) are not generally unacceptable to promoters of new L. assu. cos., it may be useful to state the grounds of the above opinions, and to show why the sources yielding the rates of mort. now questioned are not applicable to the various purposes for which the T. are pub." He then proceeds :

The first thing that attracts obs. is the relation of the male to the female mort. At the youthful and earlier adult ages the mort. of the female is represented to be greater than that of the male. This conclusion is contrary to most previous experience. It is a result which is contrary also to nature. The sexes are not created in equal numbers. For every 20 females there are produced 21 males. But no fact is more thoroughly estab. than that, whenever the pop. is counted, the females are present in considerably greater numbers. Making every allowance for the temporary absence of a part of the male pop., such a result could not take place unless the stronger sex were subject to a higher rate of mort., and died off much faster than the females. Were this not so, and did not the males, by their more rapid departure from the world, subsequently compensate for their appearance in greater numbers in the first instance, it is evident that they would more and more preponderate at every successive enumeration.

The pop. enumerated in the Census, and out of whose number the deaths in each year are regis., is composed of at least 3 great and distinct classes: viz. the wealthy, the middling class, and the labouring poor. The first class is considerable in point of numbers; the second much more so; but the third is out of all measure the most numerous. Scarcely to be disentangled from this third class is a further body composed of absolute paupers, vagrants, and criminals; and pervading all three classes, and perhaps chiefly the third, there is a certain per-centage of dissolute persons.

Now, among the first-mentioned class of the community there is a perfect command of every appliance to health and comfort, combined with the power of removal, or of absence at any time, from densely peopled and insalubrious localities. And although the middling classes, who are chiefly the direct employers of labour, have not always this option, and are moreover exposed to the trials and vicissitudes of a less assured position in life, they, too, are in the enjoyment, more or less, of most of the conditions indispensable to health and longevity. But the third and lowest class, which is the most numerous of all, in a very large proportion of the whole pop., is exposed in the highest degree to all the risks detrimental to life. [INDUSTRIAL CLASSES.]

Looking attentively, he says, at the very different conditions of life in which these three classes of society—the wealthy, middling, and indigent—are found, it is difficult, in the first place, to see how a rate of mort. deduced from the combined experience of all the three classes put together can be exactly or even approximately applicable to the circumstances of any one of them in particular. In the second place, it is equally difficult to assent to the idea that a rate of mort. derived chiefly from the deaths of the worst-off and most numerous order can be far lighter than that to which the most select and best-protected class of the community is subject. Nor does it appear that the mort. of the whole pop.—the bulk of which consists of the comparatively indigent—can yield results more applicable to the life interests of the possessors of property, than T. drawn from the decrement of life found to prevail among the classes who are supplied with all the attainable appliances proper to the conservation of existence. For this would be tantamount to a proposition that the mort. of the whole people is more applicable to the circumstances of the gentry, than the mort. of the gentry themselves. He turns to another aspect of the case :

It may, however, be surmised, with respect to the *English Life T.*, that all the deaths which occurred among the Eng. enumerated pop. were not brought to account. It is certain that a large proportion, computed by some at half a million of the young men of this nation, leaves the country in various pursuits, to return, such of them as live, in middle age. In 1851, out of the effective naval and military force of 178,773 men then on foot, 132,038 were not in this country, nor were other 95,436 men, merchant sailors, in all 227,474 men. They were counted in the Census, however; but the deaths of such of them as died abroad were not registered at home. Moreover, the deaths of these men would obviously be more numerous than the deaths of so many others of their fellow-countrymen, age for age, at home, by reason of their occupations and their sojourn in less healthy climates. But in addition to these non-regis. deaths, there would be the deaths of a large mass of Englishmen voyaging and adventuring abroad in mercantile and colonial pursuits, although it is true some of these persons might also escape the Census. It would, however, be very surprising if on inquiry it should be found

that the defect in the enumeration was compensated by a proportionate defect in the mort. The most natural as well as the most easy solution of the difficulty presented by the very low estimate taken of the youthful or young adult male mortality in the *English Life T.*, is to be found in the simple hypothesis that there is something wanting in the ingredients of the computation.

To enforce the conclusions to which his preceding remarks are intended to lead, he adds :

That probability which is commonly called the law of mort. is merely the per-centage of death which experience shows to have occurred at each and every age. But it is plainly impossible to obtain that per-centage unless we know with absolute certainty the two elements from which it is derived. The one is the number of living persons who commence each year of age, the other is the number of those who die in that year. There must be no doubt as to those primary facts. When a tontine or any system of life annu. is estab., judicial testimony is produced of the date of birth of the nominee. When that date is subtracted from the date of inmolment, the age at entry is accurately determined. The date of death is known mostly by direct information : always by the failure of satisfactory proof that the party is alive to draw the annu. From this last date the date of birth is subtracted, and the age at death is distinctly shown.

To obtain records of such facts is the object of all statisticians, and at the present day the collections are far from numerous. But no greater contrast can be found than between these authenticated records, where they exist, and the loose, vague, and voluntary statements which are incidental to a census; and equally so to the statements made to the different registrars of births, deaths, and marriages, and which must ever cause the results deduced from them to be regarded with great doubt when applied to other purposes than that of giving a tolerably exact idea of the number of the people.

It is sometimes remarked, with regard to statistical tables of questionable accuracy, that the errors will counterbalance each other. This may possibly be true, in some degree, in respect of the reported ages of the dead, and so much worse is the chance of getting at the correct per-centage of mort. in the tables now referred to; but it is never true of the reported ages of the living.

He then reviews the obs. of the Census Commissioners of 1851, regarding certain imperfections in the pop. returns; and proceeds to state his conclusions :

From the foregoing remarks it may be inferred that an indiscriminate use of the *English Life T.* might lead to some serious consequences. For example, were 1000 persons of each sex to purchase life annu. at any estab. qualified to grant such securities, and were these persons to make their proposals at the ordin. age at which such applications are usually preferred, viz. 55 years, on taking an account of the transaction 20 years afterwards, when the survivors of these persons had attained the age of 75, there would be found living, according to the computation of the *English Life T.* [No. 1 and 2], 368 males and 410 females, or in all no more than 778 persons for whose future payment it would be necessary to have the proper funds provided. But if the experience of the Gov. Life annu. may be accepted as a guide in its own particular bus., there would be found surviving at 75 years of age, out of 2000 purchasers of both sexes, chosen in equal numbers at the age of 55, no fewer than 403 males and 408 females, or in all 811 persons. Accordingly there would, by the experience of annuitant life, be really 123 persons living to provide incomes for, beyond the 778 annuitants for whom, and for no more than whom, provision had been made by the *English Life T.* [1 and 2]. And at the usual average life annu. of £60 apiece, which is the ordinary amount, this would amount to £7380 p.a. for the future payment of which there would be no funds.

Again, take the case of an estab. for granting assu. on lives. Reversions of this description, it is well known, are granted chiefly on the lives of young adult males, in consideration of an ann. prem. payable until the life concerned may fail. At the life insuring age of 27, were 1000 males to mutually assure each other in £1000 apiece, and were they to take the mort. occurring among merely male annuitant lives—prem. computed from which would be commonly thought to be altogether inadequate to meet the risks of assured life—and interest at 4 p.c., as bases of their operations, they would have to pay all of them together, for the £1,000,000 thus assured, an ann. prem. of £17,447. But another 1000 men, also of the age of 27, and mutually assuring each other in £1000 each, or £1,000,000 in the aggregate, under the guidance of the *English Life T.* [1 and 2] for males in general, at 4 p.c. int., would undertake the same responsibility for an ann. prem. of £16,885; that is to say, for £562 p.a. less than would be required to meet the claims arising out of a corresponding number of assu. annuitant lives. Five-and-twenty years afterwards, the members of both asso. being now 52 years of age, when for any purpose it became a question of looking into the affairs of each so., there would be found surviving, according to the annuitant experience 712 men, and by the *English Life T.* 724 men. It would also be discovered that in the case of the first so. founded on the annuitant experience a sum of £193,920 would, according to its own particular T., buy up all the 712 members' pol.; that is, their existing interests in the so.'s funds. But in the case of the second so., the members of which assured one another by the prem. of the *English Life T.* [1 and 2], it would be found that to buy up their pol. there would be required by their own T. a sum of £213,877, while unfortunately, towards the accumulated fund necessary for this purpose, the second so. had for 25 years been receiving £562 a year less of ann. prem. than was indispensable for accumulation, even according to the low mort. of annuitant life.

Therefore, on weighing all the foregoing circumstances, it seems difficult to accept the *English Life T.* as safe measures of value in respect of pecuniary interests, or as thoroughly reliable guides in other matters relating to political arithmetic.

Mr. Finlaison pub. the preceding obs. in 1860. Dr. Farr published *English Life T.* No. 3 in 1864, No. 2 having been pub. in 1853. In the intervening 11 years he had fully considered the points raised by Mr. Finlaison, and other writers—and he had also had the full benefit of the results of the census of 1851, and in some measure prob. those of 1861. *English T.* No. 3 is less favourable to human life than Tables 1 and 2; and the difference is chiefly in the middle ages of life—from 35 to 50.

In a paper by Mr. A. H. Bailey, and Mr. A. Day, *On the rate of mort. prevailing amongst the Families of the Peerage during the 19th Century*, read before the Inst. of Act. in 1861, and printed in vol. ix. of *Assu. Mag.*, these gentlemen, reviewing the remarks of Mr. Finlaison, already quoted, as to the relation of male and female mort., say :

From these obs. we must express our dissent. Dr. Farr's conclusion is not contrary to most previous experience. Not only in the *English Life T.*, but also in the obs. on the inhabitants of the healthy districts, on assured lives, and on the So. of Friends, the mort. of the female in the youthful and earlier adult ages is found to be greater than that of the male; and in every pub. T. of mort. to which we have been able to refer, excepting only Mr. Finlaison's and the Swedish T., the mort. of the female is, at particular ages, in excess of that of the male.

The *English Life T.* is not contrary to nature; for concurrently with the greater mort. of the female at particular ages, we almost invariably observe a greater general mort. of the male. The two circumstances—the excess of male births, and the greater general mort. of that sex—together cause that nearly uniform proportion of the sexes which successive enumerations disclose. [FEMALE LIFE.]

In the same vol. of the *Assu. Mag.* will be found some correspondence from Mr. H. W. Porter and Mr. A. H. Bailey on the subject of the *English T.*

Mr. H. W. Porter, B.A., in a letter to *Assu. Mag.* in 1861 [vol. ix. p. 277], says :

From what we have seen with respect to the Census returns, there is prob. great reason to doubt the correctness of the *English Life T.* as regards female lives; and though the same cannot be said of the male lives, still *assu. cos.* would hardly adopt a *T.* of mort. except in its entirety. If therefore this *T.* comes to be used at all, it would prob. be a *T.* based upon a combination of the two sexes—unless indeed the object should be to quote distinct rates for female life, and in this case the *English Life T.* could not prob. with safety be made use of at present. It is to be regretted, however, that any circumstances should exist to prevent the use of *T.* founded upon the mort. of the country in which the grant of *L. assu.* and *annu.* is carried on to so great an extent.

The *English Life T.* constructed by Dr. Farr some years subsequent to the estab. of the Reg.-Gen. department for the Regis. of Births, Deaths, and Marriages, naturally came to be considered as peculiarly adapted for the use of *cos.* dealing in life contingencies—in the first place because the greater proportion of bus. transacted by such *cos.* depended upon the lives of persons resident for the most part throughout life in the district embraced in the returns—and in the second place because the *T.* was based on the records of the mort. experienced at a very recent period, and upon the previous decennial census; the *T.* in question moreover was due to a computer of the highest eminence.

Of course, as far as respects correctness of computation, the *T.* may be fully relied on; but minuteness of calculation, and accuracy of records—supposing the returns of the Reg.-Gen. can be depended upon—is of no avail, unless the Census enumerators succeed in obtaining exact information; for on the numbers living at each age, according to the periodical enumerations of the people, no less than upon the number of deaths, do our Mort. *T.* depend.

Mr. W. Downing Biden, in his *Rules, Formule, and T. for the Valuation of Estates*, etc., 1861, includes some *T.* of money values deduced from the *English Life T.*

In 1863 Mr. Jardine Henry submitted to the Inst. of Act. a paper, *On the Relation of the Carlisle T. to the Government, and Reg.-Gen., and other Tables.* A very brief abstract will be found in the *Assu. Mag.* xi. p. 89, from which we take the following :

The paper commenced with a general view of the effect of emigration upon returns of deaths among the pop. of E. and W., followed by an estimate of the extent to which any calculations based upon such returns, and the general census, must be thereby affected. This was followed up by some remarks on the uncertainty attending the statements of ages of the individuals enumerated in the Census returns, and the ages returned as at death. A tabular view of the estimated effect of these causes of error upon the expectation of life, derived from the returns, was also given.

The Hon. Wm. Barnes, in his *N. Y. Ins. Rep.* for 1864, says :

For this very accurate *T.* the public are indebted to the philanthropic and praiseworthy efforts of the indefatigable physician William Farr of Lond. If, as many suppose, the rate of mort. is higher in America than in Eng., this *T.*, although already adopted by some *cos.*, will not prove to be so well adapted as the *Carlisle T.* to American life. Upon this *T.*, with int. at 5 p.c. p.a., is based the rates of prem. of the two following American Cos.:—1. *Germania L. Ins. Co.*, for life ins. and children's endow.; *New York Life Ins. and Trust Co.*, for life *assu.*

In a paper read by Dr. Farr at the Social Science Congress in 1866, speaking of *English T. No. 3*, he says :

From this *T.* we learn that the mean lifetime of the nation is 41 years (40'85), and this implies a corrected mort. of 24 (exactly 24'47) ann., whereas by the ordin. method the mort. is 22 (or 22'45). The difference arises from the increase, which throws into the pop. a mass of young persons at ages when mort. is below the average. The average age of the dying is reduced from the same cause: it is 29'4 years. Similar corrections of mort. are required, and will ultimately be made, in other countries.

The mean age of the pop. by the *Life T.* is 32 years; the mean age of the enumerated pop. in 1861 was 26½. The difference of 5½ years arises from the same cause. If a normally constituted pop. has lived 32 years, it will live 32 years under the same law of mort. (this curious law is demonstrated in the introduction to *English Life T.* page xxxii); but in Eng. the age of the people is now 26½ years; and they will live 35½ years on an average. As they are younger, they have an ampler prospect of life before them than a stationary pop.

In 1866 Mr. H. W. Rumsey, F.R.C.S., read a paper before the Manchester Statistical So., *On the Value of Life T., National and Local, as Evidence of Sanitary Condition*, wherein is contained various points of criticism upon the *English T.* The author says :

Without attempting even to sketch the hist. of these curious *T.*, still less to discuss the mathematical methods of their construction, I wish to call attention to those recorded obs. of life and death on which the *T.* are founded. They are said to depend on two concurrent series of obs.: the numbers and ages of the living, and the numbers and ages of the dying. Had these facts been always correctly obs. and recorded, for a period long enough, and in a pop. sufficiently numerous and distinguishable from birth to death, to estab. its own law of mort., we might well accept the results as conclusive. Dr. Farr, our highest authority, has, since 1841, constructed 3 *Life T.* for Eng.—monuments of profound learning and immense industry.

In the first of these *T.* his calculations were reduced to a radix or scale of 100,000 infants under 1 year of age, consisting of boys and girls in the same proportion as those born and regis. in the 2 years 1840-41. This constituted the hypothetical pop. which was to be traced through its successive ann. decrements by death, until its final extinction in 100 or 105 years. The deaths, male and female, out of this 100,000 in the first year, were assumed to be in exact proportion to the total deaths of each sex regis. at that age in 1841. The births were assumed to have occurred in the year of which Jan. 1, 1841, was the middle point. The survivors became the "pop.," from which the deaths regis. as between 1 and 2 years of age in 1841 were again subtracted, in order to show the number of expected survivors on Jan. 1, 1843.

For the first two years therefore the rate of mort. was not a *pop.* death-rate, but a *birth* death-rate. In fact there was a dilemma. Had the radix of the *T.* been taken to represent the census of pop., instead of the regis. of births, the *calculated ratio of mort. would have been higher*: because a very large though unascertained number of children living "under 1 year of age" had not been enumerated; and the error would have been greater than that which has resulted from a comparison of deaths and births, not including those births which escaped regis. The unavoidable inaccuracy of the calculation, whether based on the Census or the birth regis., was frankly admitted by the author. A true basis being unattainable, the smaller error was wisely selected for the first 2 years of life; but for succeeding years—with the view of obtaining the prob. survivors of the children born in 1840-41—it was thought better to adopt the Census distribution of the people according to age, and from it to estimate the

proportion of the orig. 100,000 which was to constitute the hypothetical pop. living at each year of life; and it was again assumed that the males and females dying at each future year out of that hypothetical pop. would be in exact proportion to the total deaths of the respective sexes regis. at such year of age in the single year of the Census. After the first 5 years of life, the mort. was reckoned for quinquennial periods, and the precise ages of the people within each quinquennium was corrected by a process of interpolation. Some such adjustment was indeed necessary, for, in 1841, the Census Commissioners allowed persons of 32, 33, or 34 to call themselves 30, and so for other ages.

It is hardly necessary to say, that if, during any of the years of the quarter of a century since 1841 a greater or less proportion of the pop. than that "expected" did actually die at each age, the hypothesis on which the first Life T. was formed is unsupported by facts. That table, I repeat, represented a series of estimates, regulated indeed by mathematical formulæ, but founded only on the facts of a single year, and on the particular composition and the vital forces of a pre-existent pop.

We pass from T. No. 1 to T. No. 3, regarding which we find the following obs.:

The rate of mort., we are again informed, is determined for the several periods of life by dividing the deaths regis. at each age by the contemporaneous years of life out of which they occur, deduced from the pop. of a corresponding age enumerated at the Census. Here, as in the previous Life T., it is assumed that the children born within the period of obs. will live as long and no longer than those who were born at intervals during the century preceding that period, and who made up the living pop. at the Census. All the diverse conditions and circumstances—physical, moral, and social—which variously affected the duration of life in Eng. for a long antecedent series of years (or the equivalents of those conditions), were assumed to exist and to act with precisely equal force upon the children born in 1838-1854, and constituting so large a proportion of the present generation.

The new Life T. consists of 3 parts:—the first "persons," and consisting of such proportions at each age of the two sexes as are produced by the births; the second for males; the third for females. The basis of part 1 (for persons) is 1,000,000 children born alive; and as boys and girls were born in Eng. during the period of obs. in the proportion of 511,745 boys to 488,255 girls, these numbers were made respectively the bases of parts 2 and 3. In the Synoptical T. (p. 24) the numbers of males and females living and dying at each year of age are given, it is said, as they would exist in a pop. under the same law of birth and mort., which is found by direct obs. to prevail in E. and W., *undisturbed by emigration, by excess of births over deaths, or by any other element of that kind.*

Now, as these conditions are never practically fulfilled in the Eng. pop., or in any portion of it, the hypothesis, however correctly applied to a calculation of prob., is of no practical value in the comparison of facts by the sanitary statist. It is, moreover, difficult to conceive how that which is here termed—the law of mort., and which I would rather call—a series of calculated results from a limited record of events, can possibly be "undisturbed by emigration, by excess of births over deaths," etc.; for these certainly have always affected—though by no means uniformly, or according to any known law—the numbers, ages, births, and deaths of the Eng. pop.; and their influences are unquestionable, if not calculable, upon every census and every mortuary regis.

While we give space for these criticisms, on the ground that all that can be said for or against these T. should be put on record for reference, we may again remark that the points have all been understood and guarded against in the construction of T. No. 3; and even Mr. Rumsey does not urge these objections against the T., as measures of the prob. duration of human life; but against their applicability to purposes which, however interesting in themselves, were not the purposes for which the tables were actually intended.

The Reg.-Gen. in his 34th Ann. Rep., pub. 1873, furnishes a T. showing the ann. mort. of males and females in E. and W., first for the 17 years 1838-54; and then for the 34 years 1838-74. This T. we have already given under DEATH-RATE (p. 226). The Reg.-Gen., reviewing the gen. results of this T., says:

The coincidence between the rates of mort. at the ages when ins. is effected are equally remarkable. This is a decisive proof of the solid foundation of the *English Life T.*, which was calculated on the pop. living at two censuses, and on 6,470,720 deaths; for the rates are in complete accord with the rates deduced from the living at four censuses, and from 14,330,919 deaths, distinguishing the numbers living at 12 ages into which human life is divided in our T., science being no longer contented with the seven ages of the old times.

The mean lifetime of the Eng. people is by the T. 40·86 years. That is the average number of years children born in Eng. live.

ENGLISH LIFE T. (NEISON).—In 1845 Mr. F. G. P. Neison pub. the 1st ed. of his *Contributions to Vital Statistics*, etc., and therein is contained a Life T. based upon the census of 1841, and upon the deaths, as recorded in the 2nd, 3rd, 4th, and 5th Rep. of Reg.-Gen. Mr. Neison thus introduces the subject:

The best record of the general mort. in E. and W. is contained in the Ann. Rep. of the Reg.-Gen. So far as relates to the number of deaths in the entire community, more complete returns could not be hoped for.

The 5th Rep. . . . contains a T. of the exp. of life calculated on the mort. of the year 1841. The census of the pop. having been taken in that year, offered a ready means to determine the value of life for that period; but as the results of the mort. for several years would undoubtedly form a broader and more satisfactory basis on which to found a measure of the duration of life in this country, it is proposed to calculate a T. on the 2nd, 3rd, 4th, and 5th Rep. of Reg.-Gen., omitting the 1st Rep., that any imperfections incidental to the early management of the regis. may be avoided. It is evidently necessary to ascertain the exact amount of pop. living at various ages in the country, during the periods of time to which the returns of death relate, before the results can be obtained, showing the ratio of the pop. dying at the respective ages.

Previous to the pop. being calculated for the mean time of each period embraced in the 2nd, 3rd, 4th, and 5th Rep., it will be necessary to apply a correction to the enumeration of the pop. at the period of the census.

In 1841, the ages of 35,408 males, and 11,472 females, or 456 p.c. of the one, and 141 p.c. of the other, were not given. In the regis. of deaths the ages of a certain proportion are also omitted; and if the ratio were the same in both cases, those whose ages were not specified might be left out, as the omission of the one would be corrected by the omission of the other; but it happens that in the returns of the entire 4 years referred to, the number of males whose ages were not specified was only 1650, or 235 p.c. of the whole; and of females 896, or only 132 p.c. of the whole deaths. Independent corrections will therefore have to be applied to each class of results.

The necessary correction having been applied by Mr. Neison to the census of the pop. in 1841, and also to the census in 1821, the results are shown in the following T.

Corrected Enumeration of the pop. of E. and W. for 1821 and 1841, with the ann. rate of increase during the intermediate period.

Ages.	Males.			Females.		
	Pop. 1821.	Pop. 1841.	Ann. rate of increase.	Pop. 1821.	Pop. 1841.	Ann. rate of increase.
Under 5 ...	898,324	1,047,502	1'00771	884,866	1,057,926	1'00897
5—10 ...	787,426	952,437	1'00955	779,516	951,687	1'01002
10—15 ...	685,011	879,732	1'01258	650,342	851,649	1'01357
15—20 ...	578,304	780,967	1'01513	611,741	805,090	1'01382
20—30 ...	857,697	1,333,088	1'02229	1,029,526	1,498,751	1'01895
30—40 ...	673,718	999,000	1'01989	741,881	1,051,505	1'01759
40—50 ...	547,372	748,487	1'01577	572,227	777,500	1'01544
50—60 ...	388,351	496,475	1'01235	402,245	529,274	1'01381
60—70 ...	262,728	329,563	1'01039	284,624	369,498	1'01313
70—80 ...	139,544	159,551	1'01008	142,366	184,468	1'01303
80—90 ...	33,577	41,224	1'01031	41,480	53,164	1'01248
90—100 ...	2,556	2,986	1'00776	3,747	4,967	1'01420
100 and upwards.	68	82	1'00956	148	167	1'00628
Total	5,845,676	7,771,094	1'01415	6,144,709	8,135,647	1'01530

The 2nd, 3rd, and 4th Rep. of Reg.-Gen. gave the number of deaths in the year preceding the 30 June, 1839, 1840, and 1841 respectively; and the 5th Rep. gave the deaths for the year ending 31 December, 1841. The next step required was to determine the pop. alive at various ages for the mean time of each of the given periods, that is, the pop. at the various times of life in E. and W. on 31 December, 1838, 1839, 1840, and 30 June, 1841. The method employed in the process is set forth.

Corrections, precisely similar to those applied to the enumeration of the pop., were made in the regis. of deaths. The results in each case are set forth in the following T.; concerning which Mr. Neison offers the following prefatory remarks:

It may be observed here that as the deaths happening in the last half of the year forming the 4th period of the Reg.-Gen., and those taking place in the first half of the year forming his 5th period, are identical; they will of course be included twice in the results now referred to; but as the pop. has also been taken for the mean of both periods of years, the proper relation is maintained between the pop. and deaths.

The preceding step was rendered necessary from the Reg.-Gen. having changed the period for his Ann. Rep. from the 30th June to the 31st Dec., without having, at the time of making the change, distinguished the deaths belonging to each half year.

All the preceding corrections having been applied to the pop. and deaths, the combined results form T. B. [the following T.], the 4th and 7th cols. of which show the mort. p.c. at the various terms of life for each sex in E. and W. during the 4 years referred to, and under that form constitute a complete measure of the value of life during the same period in the gen. pop. of this country.

Total of the pop. as calculated from the 31st Dec. in the years 1838, 1839, 1840, and 30th June, 1841; with the sum of the corrected deaths for the corresponding years as given in the 2nd, 3rd, 4th, and 5th Rep. of the Reg.-Gen.; and the mort. p.c. during that period.

Ages.	Males.			Females.		
	Pop.	Deaths.	Mort. p.c.	Pop.	Deaths.	Mort. p.c.
Under 5	4,156,265	292,968	7'048	4,192,129	254,170	6'063
5—10	3,771,901	36,588	'970	3,767,019	35,494	'942
10—15	3,473,008	18,199	'524	3,358,717	19,175	'570
15—20	3,075,023	22,464	'730	3,174,272	26,003	'819
20—30	5,210,180	50,765	'974	5,878,257	56,298	'957
30—40	3,914,433	43,451	1'110	4,129,820	47,174	1'142
40—50	2,945,219	42,770	1'452	3,060,397	40,781	1'332
50—60	1,960,445	44,196	2'254	2,086,819	40,593	1'944
60—70	1,302,647	55,491	4'259	1,457,878	54,414	3'732
70—80	631,509	57,449	9'097	727,904	60,229	8'274
80—90	163,089	32,461	19'004	209,902	38,064	18'134
90—100	11,846	4,282	36'316	19,568	6,650	33'984
100 and upwards }	325	137	42'154	662	311	47'277
Total . .	30,615,890	701,221	2'290	32,063,344	679,356	2'119

We now reach the Life T., which we propose to divide into 2 parts, showing the results for males and females in separate tables.

English Life T. (Neison), 1845—MALES.

Age.	Living.	Dying.	Mort. p.c.	Specific intensity.	Expec- tation.	Age.	Living.	Dying.	Mort. p.c.	Specific intensity.	Expec- tation.
10	100,000	791	.791	126.422	47.76	59	55,088	1478	2.684	37.258	15.18
11	99,209	696	.702	142.501	47.13	60	53,610	1527	2.849	35.100	14.59
12	98,513	624	.633	157.978	46.46	61	52,083	1583	3.040	32.895	14.00
13	97,880	576	.588	170.068	45.75	62	50,500	1637	3.242	30.845	13.42
14	97,313	554	.570	175.439	45.02	63	48,863	1697	3.474	28.785	12.85
15	96,759	562	.581	172.117	44.17	64	47,166	1754	3.720	26.882	12.30
16	96,197	598	.622	160.772	43.53	65	45,412	1814	3.996	25.025	11.75
17	95,599	655	.665	150.376	42.80	66	43,598	1867	4.284	23.343	11.22
18	94,964	673	.709	141.044	42.08	67	41,731	1923	4.608	21.701	10.70
19	94,291	706	.749	133.511	41.38	68	39,808	1969	4.947	20.214	10.20
20	93,583	734	.784	127.551	40.69	69	37,839	2016	5.329	18.765	9.70
21	92,851	757	.815	122.699	40.01	70	35,823	2054	5.735	17.437	9.22
22	92,094	779	.845	118.343	39.33	71	33,769	2092	6.197	16.137	8.75
23	91,315	800	.876	114.155	38.66	72	31,677	2118	6.686	14.957	8.29
24	90,515	822	.908	110.132	38.00	73	29,559	2141	7.243	13.806	7.85
25	89,693	840	.936	106.838	37.34	74	27,418	2146	7.828	12.775	7.43
26	88,853	853	.960	104.167	36.69	75	25,272	2149	8.502	11.762	7.01
27	88,000	863	.981	101.937	36.04	76	23,123	2131	9.218	10.848	6.62
28	87,137	870	.998	100.200	35.40	77	20,992	2108	10.041	9.960	6.24
29	86,267	872	1.011	98.912	35.75	78	18,884	2057	10.924	9.158	5.88
30	85,395	874	1.023	97.752	34.10	79	16,827	1997	11.896	8.403	5.54
31	84,521	876	1.036	96.525	33.45	80	14,830	1911	12.889	7.758	5.22
32	83,654	877	1.049	95.329	32.79	81	12,929	1806	13.972	7.158	4.91
33	82,768	880	1.063	94.073	32.13	82	11,123	1675	15.055	6.644	4.63
34	81,888	883	1.078	92.764	31.47	83	9,448	1531	16.206	6.170	4.36
35	81,005	887	1.095	91.324	30.81	84	7,917	1377	17.399	5.747	4.10
36	80,118	892	1.113	89.847	30.15	85	6,540	1224	18.716	5.349	3.86
37	79,226	898	1.134	88.183	29.48	86	5,316	1066	20.098	4.975	3.63
38	78,328	906	1.157	86.430	28.81	87	4,250	926	21.777	4.591	3.42
39	77,422	917	1.184	84.460	28.14	88	3,324	768	23.095	4.330	3.23
40	76,505	927	1.212	82.508	27.48	89	2,556	630	24.687	4.050	3.06
41	75,578	941	1.245	80.321	26.81	90	1,926	506	26.277	3.806	2.89
42	74,637	954	1.279	78.186	26.14	91	1,420	396	27.877	3.589	2.75
43	73,683	972	1.319	75.815	25.47	92	1,024	302	29.582	3.381	2.61
44	72,711	990	1.361	73.475	24.80	93	722	224	31.127	3.212	2.50
45	71,721	1009	1.407	71.073	24.14	94	498	163	32.817	3.047	2.40
46	70,712	1028	1.454	68.776	23.48	95	335	115	34.297	2.920	2.32
47	69,684	1049	1.506	66.401	22.81	96	220	75	35.572	2.811	2.27
48	68,635	1070	1.560	64.103	22.16	97	145	53	36.644	2.729	2.19
49	67,565	1096	1.621	61.690	21.50	98	92	34	37.482	2.668	2.16
50	66,469	1120	1.685	59.347	20.85	99	58	24	38.066	2.627	2.14
51	65,349	1151	1.761	56.786	20.19	100	36	13	38.650	2.587	2.14
52	64,198	1182	1.842	54.289	19.55	101	23	9	39.234	2.549	2.07
53	63,016	1219	1.935	51.680	18.90	102	14	5	39.818	2.511	2.07
54	61,797	1257	2.035	49.140	18.27	103	9	3	40.402	2.475	1.94
55	60,540	1299	2.146	46.598	17.64	104	6	2	40.986	2.440	1.67
56	59,241	1339	2.261	44.228	17.01	105	4	2	41.570	2.405	1.25
57	57,902	1385	2.393	41.789	16.39	106	2	1	42.154	2.372	1.00
58	56,517	1429	2.529	39.541	15.78	107	...	...	...	...	.50

Mr. Neison offers the following obs. on the results of the T. :

Male and female life will each be found to attain its highest specific intensity at the age of 14. It will also be seen that male life possesses a much higher specific intensity than female life up to the age of 25 inclusive; from that to the age of 38 the difference is very little, but that generally in favour of male life; and that from 38 upwards to nearly the extreme of life, the scale turns in favour of female life, and the specific intensity is higher throughout. At the age of 50 the two sexes attain their balance, the numbers surviving of each from the age of 10 being equal. The nature of the specific intensity in the preceding sense must be clearly understood to refer to that period of life only to which it is affixed, and not to be any index to the general value of life; for it will be seen that although male life possesses a higher specific intensity up to the age of 38, still female life is of a higher absolute value throughout the whole of the same period.

It is clear that a T. formed from the data at present under consideration will show the value of life in the country generally; all classes of society from the richest to the lowest being included; and it will therefore serve as a useful standard of comparison with the measure of life in individual classes of society, provided the rate of mort. in those classes can be determined.

The expec. of male life shown in the T. is greater throughout than that in the *English T.* No. 1. [See T. for Females on next page.]

ENGLISH LIFE T.—HEALTHY DISTRICTS (FARR).—In the 20th Ann. Rep. of the Reg.-Gen., pub. 1859 (p. 174), Dr. Farr, in his letter on the causes of death, enters upon a consideration of the "method of comparing the local rates of mort. with the standard rate," and remarks thereon:

We have no means of ascertaining what the rate of mort. would be among men living in the most favourable sanitary conditions; otherwise obs. for a term of years on a considerable number of such persons would supply a standard rate with which other rates could be compared. *In the absence of such a standard the districts of Eng. in which the mort. rate did not exceed 17 ann. deaths in 1000 living have been selected as the basis of a new Life T., which will shortly be pub., as the nearest approximation we can obtain to a T. representing the human race in a normal state.*

Dr. Farr then enters upon some illustrations and comparisons, which we shall review under HEALTHY DISTRICTS, MORT. IN. We here propose to confine ourselves to the T.

In 1860 Dr. Farr submitted to the Royal So. a paper: *On the Construction of Life T.*,

English Life T. (Neison), 1845—FEMALES.

Age.	Living.	Dying.	Mort. p.c.	Specific intensity.	Expec- tation.	Age.	Living.	Dying.	Mort. p.c.	Specific intensity.	Expec- tation.
10	100,000	792	792	126'262	48'38	59	56,410	1325	2'348	42'590	16'16
11	99,208	712	712	139'276	47'76	60	55,085	1365	2'479	40'339	15'53
12	98,496	653	663	150'830	47'11	61	53,720	1410	2'625	38'095	14'91
13	97,834	618	632	158'223	46'42	62	52,310	1463	2'797	35'753	14'30
14	97,225	610	627	159'490	45'71	63	50,847	1529	3'008	33'245	13'70
15	96,615	627	649	154'483	44'99	64	49,813	1594	3'233	30'931	13'11
16	95,988	671	699	143'061	44'29	65	47,724	1666	3'492	28'637	12'53
17	95,317	710	745	134'228	43'59	66	46,058	1732	3'761	26'889	11'96
18	94,607	744	786	127'226	42'92	67	44,326	1801	4'065	24'600	11'41
19	93,803	769	819	122'100	42'25	68	42,525	1863	4'383	22'815	10'87
20	93,094	786	844	118'483	41'60	69	40,662	1929	4'744	21'079	10'35
21	92,308	794	860	116'279	40'95	70	38,733	1985	5'126	19'508	9'84
22	91,514	804	879	113'766	40'30	71	36,748	2044	5'563	17'976	9'34
23	90,710	815	899	111'235	39'65	72	34,704	2090	6'022	16'606	8'87
24	89,895	825	918	108'932	39'01	73	32,614	2134	6'543	15'283	8'40
25	89,070	835	938	106'610	38'36	74	30,480	2161	7'090	14'104	7'96
26	88,235	845	958	104'384	37'72	75	28,319	2183	7'711	12'968	7'52
27	87,390	854	977	102'354	37'08	76	26,136	2187	8'368	11'950	7'11
28	86,536	863	997	100'301	36'44	77	23,949	2180	9'103	10'985	6'72
29	85,673	873	1'016	98'425	35'80	78	21,769	2149	9'876	10'126	6'34
30	84,803	884	1'035	96'618	35'16	79	19,620	2105	10'732	9'319	5'98
31	83,925	884	1'053	94'967	34'52	80	17,515	2035	11'621	8'606	5'64
32	83,041	891	1'073	93'197	33'89	81	15,480	1948	12'588	7'943	5'31
33	82,150	895	1'089	91'827	33'25	82	13,532	1838	13'589	7'358	5'00
34	81,255	900	1'107	90'334	32'61	83	11,694	1716	14'674	6'817	4'71
35	80,355	902	1'123	89'047	31'97	84	9,978	1575	15'789	6'329	4'44
36	79,453	904	1'138	87'873	31'33	85	8,403	1430	17'020	5'875	4'17
37	78,549	906	1'153	86'730	30'69	86	6,973	1277	18'312	5'461	3'93
38	77,643	906	1'167	85'690	30'04	87	5,696	1123	19'708	5'074	3'69
39	76,737	906	1'181	84'674	29'39	88	4,573	968	21'162	4'726	3'48
40	75,831	906	1'194	83'752	28'73	89	3,605	819	22'706	4'403	3'28
41	74,925	908	1'212	82'508	28'07	90	2,786	676	24'268	4'120	3'09
42	74,017	911	1'231	81'235	27'41	91	2,110	545	25'846	3'868	2'93
43	73,106	916	1'253	79'808	26'75	92	1,565	429	27'404	3'650	2'77
44	72,190	923	1'277	78'309	26'08	93	1,136	329	28'999	3'450	2'63
45	71,269	931	1'307	76'511	25'41	94	807	247	30'625	3'266	2'49
46	70,336	940	1'337	74'794	24'74	95	560	180	32'193	3'107	2'37
47	69,396	953	1'373	72'833	24'07	96	380	128	33'724	2'966	2'26
48	68,443	966	1'411	70'872	23'40	97	252	89	35'223	2'839	2'16
49	67,477	982	1'455	68'728	22'73	98	163	60	36'642	2'729	2'06
50	66,495	999	1'503	66'534	22'05	99	103	39	37'971	2'634	1'98
51	65,496	1020	1'558	64'185	21'38	100	64	25	39'300	2'544	1'87
52	64,476	1043	1'617	61'843	20'71	101	39	16	40'629	2'461	1'76
53	63,433	1072	1'690	59'172	20'05	102	23	10	41'958	2'384	1'63
54	62,361	1102	1'768	56'561	19'38	103	13	6	43'287	2'310	1'50
55	61,259	1143	1'866	53'591	18'72	104	7	3	44'617	2'241	1'36
56	60,116	1192	1'982	50'454	18'07	105	4	2	45'947	2'177	1'00
57	58,924	1237	2'100	47'019	17'42	106	2	1	47'277	2'115	'50
58	57,687	1277	2'215	45'147	16'79						

illustrated by a new *Life T. of the Healthy Districts of Eng.* This paper is pub. in *Philo. Trans.* for 1860, and by permission reprinted in the *Assu. Mag.* ix. p. 121. After commenting upon and expounding various points in connexion with the construction of mort. T., Law of mort., etc., etc., each of which will be noted under its proper head, he comes to the "*Life T. of the 63 Healthiest English Districts*:"

Upon inquiry it was found that in many districts of Eng. the mort. of the pop. did not exceed the rate of 17 ann. deaths to 1000 living. For the sake of convenience these were called "healthy districts," consisting of 64, or nearly a tenth-part of the total regis. districts of E. and W., and inhabited by nearly a million of people. Sixty-three of these districts have been taken as the basis of the new *Life T.*, constructed according to the methods previously described.

The districts, generally conterminous with Poor Law Unions, are distributed over the various parts of the country; and the rates of mort. found to prevail in each is named in parentheses after the names of the district. This rate indicates the number of deaths to 1000 living of all ages, and was deduced from the returns of the living at the censuses of 1841 and 1851, and the deaths regis. in the 10 years 1841 to 1850.

In the neighbourhood of London were the following: *Hendon* (with Harrow) (17), *Lewisham* (17), *Bromley* (17). On the southern slope of the Surrey hills: *Hambleton* (16), *Dorking* (17), *Reigate* (16), *Godstone* (17). In Kent: *East Ashford* (17), *Blean* (including Herne Bay) (17). In Sussex: *Battle* (16), *Eastbourne* (15), *Hailsham* (17), *Uckfield* (17), *East Grinstead* (17), *Cuckfield* (16), *Steyning* (16), *Petworth* (17), *Worthing* (17), *Midhurst* (17). In Hampshire: *Isle of Wight* (17), *Lyminster* (17), *Christchurch* (16), *Ringwood* (17), *New Forest* (17), *Catherington* (17), *Alresford* (17). In Berkshire: *Wokingham* (17), *Easthampstead* (16). In Essex: *Ongar* (17). In Suffolk: *Mutford* (including Lowestoft) (17). In Norfolk: *Henstead* (south of Norwich) (17). In Devon: *Okehampton* (16), *Credon* (17), *Barnstaple* (17), *Torrington* (17), *Bideford* (17), *Holworthy* (16). In Cornwall: *Stratton* (17), *Camelford* (17), *Launceston* (17), *St. Columb* (17). In Somerset: *Williton* (17). In Gloucestershire: *Winchcomb* (17). In Worcester-

shire: *King's Norton* (near Birmingham) (17). In Leicestershire: *Southwell* (near Sherwood Forest) (17). In Lancashire: *Garstang* (16). In Yorkshire: *Easingwold* (North Riding) (17), *Guisborough* (East Riding) (16). In Northumberland: *Belford* (17), *Glendale* (15), *Rothbury* (15), *Bellingham* (17), *Halwistle* (16) [this is omitted from T.], *Longtown* (17), *Brampton* (17). In Cumberland: *Booth* (16). In Westmoreland: *East Ward* (17). In South Wales: *Haverfordwest* (17). In North Wales: *Builth* (16), *Corwen* (17), *Pwllheli* (17), *Anglesea* (17).

In our art. DISEASE, in reviewing a paper by Dr. E. Headlam Greenhow: *On a Standard of Public Health for Eng.*, we have already become familiar with some of the general features of the districts over which we have again just travelled. Our Reg.-Gen., in his special Rep. on Cholera, 1852, offered the following obs. bearing upon the same point, of the special salubrity of certain districts of E. and W.:

Such is the variety of soil in Eng. that, tested by the rates of mort., the children reared out of a given number born, the longevity of the inhabitants, the freedom from common epidemics, or the immunity from cholera, healthy districts are found in nearly every county. Large tracts of country are, however, so much healthier than the rest, that they may be justly called Salubrious Fields; and it is remarkable that here the finest races of animals are bred. The north districts of Northumberland, around the beautiful Cheviot Hills, covered with grasses, ferns, and wild thyme, extending from the regions of the heaths to the rich cultivated land at their bases, touching each other, or intersected by narrow valleys—the districts extending from the Tees, over the North and East Ridings of York, to Leicestershire, Herefordshire, and parts of Shropshire—some of the districts of Gloucestershire about the Cotswold Hills—parts of Wales—North Devon, including Dartmoor and Exmoor—the Surrey and Sussex Hill, with the Southdowns—have given names to the best breeds of sheep, fowls, cattle, and horses in the kingdom.

The dry and most inland are not always the healthiest regions of the country. The salubrious fields are sometimes watered by running streams and diversified by lakes. The dew is abundant. They are often veiled, not by infectious fogs, but by mists drawn from the sky as it breathes over them. The mountains rise above, the ocean rolls at a distance below them, as on the coast of Sussex, North Devon, the western region of Wales, extending under Snowdon and Cader Idris in a vast amphitheatre round Cardigan bay—the lake land and moors of the north, rising between the Irish Sea and the German Ocean. The land is sometimes heathy, but may be covered by the sweetest herbage, and bees feeding on the flowers. The cereal grains, the hop, the timber are often of the finest quality. The animals are healthy, the native breeds are vigorous, and those fine varieties are produced at intervals which men of the genius of Bakewell, Ellman, Tomkins, Colling, and O'Kelly make the permanent stock of the country. Industry and the army receive their best recruits from the pop., while they get their worst from the people of the low parts of sickly towns. Agriculture has reclaimed many unhealthy districts on the plains, so that a considerable extent of the cultivated land is now in a state of comparative salubrity; and vast systems of drainage have subdued the noxious fens, although carried out less efficiently than is desirable, and interfered with by mill dams on the rivers, descending like the Nene from the inland high lands.

The sanitary condition of the people in many of these favoured districts is still regarded as by no means perfect.

Dr. Simon, the Medical Officer of the Privy Council, in his first Report to that august body, 1858 [pub. 1859], offers some obs. "on the state of public health in Eng.," certain passages from which have a very direct bearing upon our present subject. He says: "The essential points which I deem it necessary to bring under your Lordships' consideration are, first, the *present very large total of deaths*; and secondly, the *inequality with which deaths are distributed in different districts of the country*." On the first point he offers the following remarks:

From the Reg.-General's last Quarterly Rep. I learn that in the year 1858 the deaths in Eng. amounted to 450,018. If the views be correct which in the above-mentioned rep. I had the honour of submitting in detail for the consideration of H. M. Gov., *this mort. very greatly exceeds the normal rate of death*. It represents an excess of at least 300 deaths a day above what the best authorities consider the natural and attainable death-rate of Eng.; and if this death-rate—which fortunately is habitual in a tenth part of the districts of Eng.—had not been exceeded by the death-rates of the remaining pop., there would have been in the year 1858 a saving of more than 100,000 lives!

In the rep. referred to [Rep. to Gen. Board of Health on the preventibility of many kinds of premature death, and on the local distribution of such deaths in Eng.], I have stated the grounds on which it seems certain that, if only a few simple sanitary faults were corrected throughout the country, the average ann. mort. might be reduced even to this large extent. Absence of proper drainage and scavenging, impurity of water supply, over-crowded, ill-ventilated, uncleaned dwellings;—unwholesome conditions, connected (but often not necessarily connected) with the pursuit of certain branches of industry;—neglect of children, incidentally (but not unavoidably) arising from the employment of mothers in factories;—omission or mal-performance of vaccination;—these few heads indicate our chief sanitary evils, and their average ann. fatality may safely be reckoned at more than 100,000 deaths.

Then, on the second head:

As regards the local distribution of this large excess of mort., I need hardly inform your Lordships, that, speaking generally, towns are the chief sufferers;—partly because they, with reference to the habits and occupations of the people, have certain causes of disease almost peculiar to them; but still more because they are the chief seats of those very fatal diseases which are engendered or multiplied by filth.

In 1858, disease seems to have been distributed on this, its usual plan. Seven-tenths of the excess of deaths were suffered by the inhabitants of large towns, who do not constitute half the pop. of Eng. The remaining three-tenths were suffered by the inhabitants of small towns and country parishes. . . . That more than half of our ann. mort. results from diseases which prevail with a very great range of difference in proportion as sanitary circumstances are bad or good; that according to the latest available evidence some of these diseases prevail twice or thrice, some of them 10 or 20 times, some of them even 40 or 50 times, as fatally in some districts as in other districts of Eng.; that the result of their excessive partial development is to render the mort. of certain districts from 50 to 100 p.c. higher than the mort. of other districts, and to raise the death-rate of the whole country 33 p.c. above the death-rate of its healthiest parts;—these are the broad facts which I respectfully submit for your Lordships' consideration, to illustrate, so far as existing information permits, the present average state of the public health.

In conclusion, I beg to observe that even in the very districts to which provisionally I refer as standards of health, there are deaths of a preventible kind; not many, indeed, but enough to satisfy your Lordships that the healthiness of those districts, as compared with perfection, is but of moderate excellence; and enough to show that, if in those districts the pop. had exhausted all known means for removing the causes of disease, their death-rate would have contrasted still more strikingly with that of the unhealthier districts.

In the 4th Rep. of the same series (pub. 1862) there is contained an important paper: "Places with habitually high death-rates from particular kinds of disease." This subject will be considered under LOCALITY, INFLUENCE OF; and under OCCUPATIONS, INFLUENCE OF.

The following is a summary of the data on which this T. is based.

Pop. 1851; Deaths in the 5 years 1849 to 1853; average ann. mort. p.c.

Ages.	Population.			Deaths.			Average Ann. Mort. to 100 living.		
	Persons.	Males.	Females.	Persons.	Males.	Females.	Persons.	Males.	Females.
All ages	996,773	493,525	503,248	87,354	43,736	43,609	1'753	1'772	1'733
Under 5	130,635	65,700	64,935	26,361	14,282	12,079	4'036	4'388	3'720
5-10	122,406	61,733	60,673	4,209	2,080	2,129	'688	'674	'702
10-15	110,412	56,651	53,761	2,377	1,087	1,290	'431	'384	'485
15-25	181,339	90,066	91,273	6,603	3,113	3,490	'728	'691	'756
25-35	136,892	65,422	71,470	5,869	2,675	3,194	'857	'818	'894
35-45	108,056	52,734	55,322	5,208	2,447	2,761	'964	'928	'998
45-55	85,244	42,383	42,861	5,252	2,598	2,554	1'232	1'273	1'192
55-65	62,857	31,105	31,752	7,001	3,568	3,433	2'228	2'594	2'162
65-75	39,453	18,860	20,593	10,313	5,173	5,140	5'228	5'486	4'992
75-85	16,737	7,718	9,019	10,297	4,946	5,351	12'304	12'817	11'866
85-95	2,614	1,097	1,517	1,555	2,026	2,026	27'399	28'350	26'711
95 and upwards	128	56	72	274	112	162	42'813	40'000	45'000

Note.—The ages at death of 146 persons—viz. 123 males and 23 females—were not stated; in calculating the mort. they were distributed proportionably over the several ages of the T. The T. may be read thus:—136,892 persons (of whom 65,422 were males, and 71,470 were females, at the age of 25 and under 35) were enumerated in 1851; at the same ages, 5,869 (2,675 males and 3,194 females) died in the 5 years 1849 to 1853; consequently the ann. rates of mort. p.c. were '857, '818, and '894.

The following T. shows the infant mort. of the same districts.

Deaths under 5 years of Age in the Healthy Districts in 1848 to 1855.

Years.	Persons.					Males.					Females.				
	0	1	2	3	4	0	1	2	3	4	0	1	2	3	4
1848	2935	832	458	371	312	1678	442	244	204	162	1257	390	214	167	150
1849	2932	858	541	427	292	1637	452	263	207	154	1295	406	278	220	138
1850	2969	859	466	331	301	1676	453	231	164	144	1293	406	235	167	157
1851	3185	932	543	341	288	1769	502	274	179	148	1416	430	269	162	140
1852	3405	860	567	389	297	1913	446	273	206	140	1492	414	294	183	157
1853	3370	946	554	376	287	1888	514	293	179	137	1482	432	261	197	150
1854	3404	1047	601	386	311	1903	539	317	197	165	1501	508	284	189	146
1855	3350	907	533	445	297	1948	483	257	230	156	1402	424	276	215	141

Number of Births in 63 Healthy Districts of England, 1848 to 1853:

Years.	Persons.	Males.	Females.
1848	28,679	14,756	13,923
1849	29,128	14,751	14,377
1850	29,699	15,176	14,523
1851	30,163	15,465	14,698
1852	30,370	15,557	14,813
1853	29,214	15,010	14,204

The application of the T. is thus expounded by Dr. Farr:

Generations of men, under all circumstances, die at all ages; but the proportions vary indefinitely under different conditions, from a slight tribute to death each year, down to the point of extermination by pestilence. If we ascertain at what rate a generation of men dies away under the least unfavourable existing circumstances, we obtain a standard by which the loss of life, under other circumstances, is measured; and this I have endeavoured to determine in the Life T. of English Healthy Districts. . . . In a subsequent paper I hope to be able to lay before the So. the mort. by different kinds of diseases at each age, as they have been deduced from the same series of obs.

This subsequent paper we have not yet seen; we look forward to it with much interest. Here follows the T.:

ENGLISH LIFE TABLE (HEALTHY DISTRICTS).

Healthy Districts Life T.—Living, Dying, Expectation, etc.—PERSONS.

Age.	Living.	Dying.	Mean After-life-time of persons of each age. (<i>Expectation.</i>)	Mean After-life-time of persons of each age and upwards.	Mean age of persons living at each age and upwards.	Mean age at death		Age.
						of persons actually living at each age.	of persons actually living at each age and upwards.	
0	100,000	10295	49'00	33'92	33'92	49'00	67'84	0
1	89,705	3005						1
2	86,700	1885						2
3	84,815	1305						3
4	83,510	1051						4
5	82,459	847	54'16	31'98	36'98	59'16	68'96	5
6	81,612	682						6
7	80,930	555						7
8	80,375	459						8
9	79,916	391						9
10	79,525	347	51'08	29'91	39'91	61'08	69'82	10
11	79,178	324						11
12	78,854	319						12
13	78,535	328						13
14	78,207	350						14
15	77,857	379	47'12	27'85	42'85	62'12	70'70	15
16	77,478	414						16
17	77,064	451						17
18	76,613	489						18
19	76,124	524						19
20	75,600	552	43'45	25'82	45'82	63'45	71'64	20
21	75,048	562						21
22	74,486	571						22
23	73,915	577						23
24	73,338	583						24
25	72,755	588	40'05	23'79	48'79	65'05	72'58	25
26	72,167	591						26
27	71,576	593						27
28	70,983	595						28
29	70,388	596						29
30	69,792	598	36'64	21'76	51'76	66'64	73'52	30
31	69,194	599						31
32	68,595	599						32
33	67,996	601						33
34	67,395	601						34
35	66,794	603	33'17	19'73	54'73	68'17	74'46	35
36	66,191	604						36
37	65,587	608						37
38	64,979	610						38
39	64,369	613						39
40	63,756	618	29'64	17'71	57'71	69'64	75'42	40
41	63,138	623						41
42	62,515	630						42
43	61,885	638						43
44	61,247	645						44
45	60,602	656	26'05	15'71	60'71	71'05	76'42	45
46	59,946	666						46
47	59,280	679						47
48	58,601	692						48
49	57,909	706						49
50	57,203	722	22'44	13'74	63'74	72'44	77'48	50
51	56,481	740						51

Age.	Living.	Dying.	Mean After-life-time of persons of each age. (<i>Expectation.</i>)	Mean After-life-time of persons of each age and upwards.	Mean age of persons living at each age and upwards.	Mean age at death		Age.
						of persons actually living at each age.	of persons actually living at each age and upwards.	
52	55,741	758						52
53	54,983	777						53
54	54,206	798						54
55	53,408	820	18·86	11·84	66·84	73·86	78·68	55
56	52,588	843						56
57	51,745	894						57
58	50,851	956						58
59	49,895	1040						59
60	48,855	1123	15·37	10·04	70·04	75·37	80·08	60
61	47,732	1205						61
62	46,527	1281						62
63	45,246	1356						63
64	43,890	1430						64
65	42,460	1501	12·29	8·37	73·37	77·29	81·74	65
66	40,959	1571						66
67	39,388	1638						67
68	37,750	1705						68
69	36,045	1767						69
70	34,278	1825	9·61	6·86	76·86	79·61	83·72	70
71	32,453	1876						71
72	30,577	1921						72
73	28,656	1955						73
74	26,701	1980						74
75	24,721	1991	7·34	5·51	80·51	82·34	86·02	75
76	22,730	1987						76
77	20,743	1966						77
78	18,777	1931						78
79	16,846	1875						79
80	14,971	1803	5·51	4·36	84·36	85·51	88·72	80
81	13,168	1713						81
82	11,455	1608						82
83	9,847	1491						83
84	8,356	1360						84
85	6,996	1224	4·10	3·41	88·41	89·10	91·82	85
86	5,772	1084						86
87	4,688	943						87
88	3,745	805						88
89	2,940	675						89
90	2,265	555	3·05	2·65	92·65	93·05	95·30	90
91	1,710	444						91
92	1,266	350						92
93	916	269						93
94	647	201						94
95	446	146	2·29	2·05	97·05	97·27	99·10	95
96	300	104						96
97	196	71						97
98	125	48						98
99	77	31						99
100	46	19	1·72	1·47	101·47	101·72	102·94	100
101	27	12						101
102	15	7						102
103	8	4						103
104	4	2						104
105	2	1	...	...	...	...	...	105
106	1	1						106

Healthy Districts Life T.—Living, Dying, Expect., and Money Values.—MALES.

Age.	Living.	Dying.	Mean After-life-time at each age. (<i>Expectation.</i>)	Mean age at death of Males actually living at each age.	Present value of an annu. of £1.	Annu. which £1 will purchase.	Single Prem. which will ins. £1 over the whole term of Life.	Ann. Prem. which will ins. £1 over the whole term of Life.	Age.
0	51,125	5767	48'56	48'56	22'1580	'04513	'35462	'01600	0
1	45,358	1591			24'5635	'04071	'28456	'01158	1
2	43,767	953			25'1527	'03976	'26740	'01063	2
3	42,814	661			25'4313	'03932	'25928	'01019	3
4	42,153	532			25'5588	'03913	'25557	'01000	4
5	41,621	427	54'39	59'39	25'6190	'03903	'25382	'00990	5
6	41,194	341			25'6201	'03903	'25378	'00990	6
7	40,853	275			25'5706	'03911	'25522	'00998	7
8	40,578	223			25'4789	'03925	'25790	'01012	8
9	40,355	186			25'3527	'03944	'26157	'01031	9
10	40,169	161	51'28	61'28	25'1994	'03968	'26604	'01055	10
11	40,008	146			25'0256	'03996	'27110	'01083	11
12	39,862	142			24'8374	'04026	'27658	'01113	12
13	39,720	144			24'6401	'04058	'28233	'01145	13
14	39,576	154			24'4382	'04092	'28821	'01179	14
15	39,422	168	47'20	62'20	24'2354	'04126	'29411	'01213	15
16	39,254	186			24'0349	'04161	'29996	'01248	16
17	39,068	205			23'8387	'04195	'30567	'01282	17
18	38,863	227			23'6485	'04229	'31121	'01316	18
19	38,636	248			23'4649	'04262	'31656	'01349	19
20	38,388	267	43'40	63'40	23'2882	'04294	'32170	'01381	20
21	38,121	272			23'1174	'04326	'32668	'01413	21
22	37,849	277			22'9449	'04358	'33170	'01445	22
23	37,572	281			22'7700	'04392	'33680	'01479	23
24	37,291	284			22'5921	'04426	'34198	'01513	24
25	37,007	287	39'93	64'93	22'4105	'04462	'34727	'01549	25
26	36,720	288			22'2247	'04499	'35268	'01586	26
27	36,432	289			22'0343	'04538	'35822	'01625	27
28	36,143	290			21'8388	'04579	'36392	'01666	28
29	35,853	291			21'6378	'04622	'36977	'01709	29
30	35,562	292	36'45	66'45	21'4308	'04666	'37580	'01753	30
31	35,270	292			21'2177	'04713	'38201	'01800	31
32	34,978	292			20'9979	'04762	'38841	'01849	32
33	34,686	293			20'7715	'04814	'39500	'01901	33
34	34,393	293			20'5380	'04869	'40180	'01956	34
35	34,100	295	32'90	67'90	20'2975	'04927	'40881	'02014	35
36	33,805	296			20'0497	'04988	'41603	'02075	36
37	33,509	298			19'7945	'05052	'42346	'02139	37
38	33,211	300			19'5318	'05120	'43111	'02207	38
39	32,911	302			19'2617	'05192	'43898	'02279	39
40	32,009	306	29'29	69'29	18'9842	'05268	'44706	'02355	40
41	32,303	310			18'6992	'05348	'45536	'02435	41
42	31,993	315			18'4069	'05433	'46388	'02520	42
43	31,678	320			18'1072	'05523	'47261	'02610	43
44	31,358	326			17'8003	'05618	'48155	'02705	44
45	31,032	334	25'65	70'65	17'4863	'05719	'49069	'02806	45
46	30,698	341			17'1652	'05826	'50004	'02913	46
47	30,357	350			16'8374	'05939	'50959	'03026	47
48	30,007	360			16'5028	'06060	'51934	'03147	48
49	29,647	370			16'1615	'06188	'52928	'03275	49
50	29,277	381	22'03	72'03	15'8136	'06324	'53941	'03411	50
51	28,896	394			15'4595	'06469	'54972	'03556	51
52	28,502	407			15'0991	'06623	'56022	'03710	52

Age.	Living.	Dying.	Mean After-life-time at each age. (<i>Expectation</i>).	Mean age at death of Females actually living at each age.	Present value of an annu. of £1.	Annu. which £1 will purchase.	Single Prem. which will ins. £1 over the whole term of Life.	Ann. Prem. which will ins. £1 over the whole term of Life.	Age.
53	28,095	420	18'49	73'49	£14'7323	£0'6788	£5'7090	£0'3875	53
54	27,675	435			14'3592	0'6964	5'8177	0'4051	54
55	27,240	451			13'9799	0'7153	5'9282	0'4240	55
56	26,789	467			13'5942	0'7356	6'0405	0'4443	56
57	36,322	483			13'2019	0'7575	6'1548	0'4662	57
58	25,839	501			12'8031	0'7811	6'2709	0'4898	58
59	25,338	542			12'3973	0'8066	6'3891	0'5153	59
60	24,796	587	15'06	75'06	11'9956	0'8336	6'5061	0'5423	60
61	24,209	631			11'6002	0'8621	6'6213	0'5708	61
62	23,578	672			11'2104	0'8920	6'7348	0'6007	62
63	22,906	712			10'8254	0'9237	6'8470	0'6324	63
64	22,194	752			10'4451	0'9574	6'9577	0'6661	64
65	21,442	789			10'0694	0'9931	7'0672	0'7018	65
66	20,653	926			9'6987	1'0311	7'1751	0'7398	66
67	19,827	861	12'00	77'00	9'3328	1'0715	7'2817	0'7802	67
68	18,966	895			8'9726	1'1145	7'3866	0'8232	68
69	18,071	926			8'6184	1'1603	7'4898	0'8690	69
70	17,145	954			8'2706	1'2091	7'5911	0'9178	70
71	16,191	978			7'9301	1'2610	7'6903	0'9697	71
72	15,213	999			7'5974	1'3162	7'7872	1'0249	72
73	14,214	1013			7'2727	1'3750	7'8817	1'0837	73
74	13,201	1022	7'15	82'15	6'9567	1'4375	7'9738	1'1462	74
75	12,179	1023			6'6503	1'5037	8'0630	1'2124	75
76	11,156	1016			6'3532	1'5740	8'1495	1'2827	76
77	10,140	1000			6'0663	1'6485	8'2331	1'3572	77
78	9,140	977			5'7900	1'7271	8'3136	1'4358	78
79	8,163	943			5'5243	1'8102	8'3910	1'5189	79
80	7,220	902	5'37	85'37	5'2692	1'8978	8'4653	1'6065	80
81	6,318	851			5'0256	1'9898	8'5362	1'6985	81
82	5,467	794			4'7931	2'0863	8'6040	1'7950	82
83	4,673	731			4'5714	2'1875	8'6685	1'8962	83
84	3,942	662			4'3596	2'2938	8'7302	2'0025	84
85	3,280	591			4'1597	2'4040	8'7884	2'1127	85
86	2,689	520			3'9698	2'5190	8'8438	2'2277	86
87	2,169	448	4'01	89'01	3'7888	2'6394	8'8965	2'3481	87
88	1,721	380			3'6188	2'7634	8'9460	2'4721	88
89	1,341	316			3'4579	2'8919	8'9929	2'6006	89
90	1,025	257			3'3052	3'0256	9'0373	2'7343	90
91	768	204			3'1625	3'1620	9'0789	2'8707	91
92	564	159			3'0406	3'2888	9'1144	2'9975	92
93	405	122			2'9360	3'4060	9'1449	3'1147	93
94	283	89			2'8395	3'5217	9'1730	3'2304	94
95	194	65	2'25	97'25	2'7388	3'6512	9'2023	3'3599	95
96	129	45			2'6483	3'7761	9'2287	3'4848	96
97	84	31			2'5269	3'9575	9'2640	3'6662	97
98	53	21			2'4128	4'1446	9'2973	3'8533	98
99	32	13			2'3262	4'2989	9'3225	4'0076	99
100	19	8	1'69	101'69	2'0256	4'9367	9'4100	4'6454	100
101	11	5			1'8235	5'4841	9'4689	5'1928	101
102	6	3			...	...	...	...	102
103	3	1			...	...	...	...	103
104	2	I			...	...	...	...	104
105	I	I			...	...	...	...	105
106	...	...			...	...	...	...	106

Healthy Districts Life T.—Living, Dying, Expec., and Money Values.—FEMALES.

Age.	Living.	Dying.	Mean After-life- time at each age. (<i>Expectation</i>).	Mean age at death of Females actually living at each age.	Present value of an annu. of £1.	Annu. which £1 will purchase.	Single Prem. which will ins. £1 over the whole term of life.	Ann. Prem. which will ins. £1 over the whole term of life.	Age.
0	48,875	4528	49'45	49'45	£22'5213	£0'4440	£34404	£0'1527	0
1	44,347	1414			24'4301	0'4093	28844	0'1180	1
2	42,933	932			24'9278	0'4012	27395	0'1099	2
3	42,001	644			25'1926	0'3969	26624	0'1056	3
4	41,357	519			25'3062	0'3952	26293	0'1039	4
5	40,838	420	53'93	58'93	25'3539	0'3944	26154	0'1031	5
6	40,418	341			25'3450	0'3946	26180	0'1033	6
7	40,077	280			25'2887	0'3954	26344	0'1041	7
8	39,797	236			25'1936	0'3969	26621	0'1056	8
9	39,501	205			25'0679	0'3989	26987	0'1076	9
10	39,356	186	50'88	60'88	24'9191	0'4013	27420	0'1100	10
11	39,170	178			24'7538	0'4040	27902	0'1127	11
12	38,992	177			24'5778	0'4069	28414	0'1156	12
13	38,815	184			24'3962	0'4099	28943	0'1186	13
14	38,631	196			24'2128	0'4130	29477	0'1217	14
15	38,435	211	47'04	62'04	24'0310	0'4161	30007	0'1248	15
16	38,224	228			23'8528	0'4192	30526	0'1279	16
17	37,996	246			23'6797	0'4223	31030	0'1310	17
18	37,750	262			23'5121	0'4253	31518	0'1340	18
19	37,488	276			23'3496	0'4283	31991	0'1370	19
20	37,212	285	43'50	63'50	23'1907	0'4312	32454	0'1399	20
21	36,927	290			23'0333	0'4342	32913	0'1429	21
22	36,637	294			22'8739	0'4372	33377	0'1459	22
23	36,343	296			22'7120	0'4403	33848	0'1490	23
24	36,047	299			22'5473	0'4435	34328	0'1522	24
25	35,748	301	40'18	65'18	22'3796	0'4468	34818	0'1555	25
26	35,447	303			22'2077	0'4503	35317	0'1590	26
27	35,144	304			22'0320	0'4539	35829	0'1626	27
28	34,840	305			21'8518	0'4576	36354	0'1663	28
29	34,535	305			21'6670	0'4615	36892	0'1702	29
30	34,230	306	36'85	66'85	21'4771	0'4656	37445	0'1743	30
31	33,924	307			21'2818	0'4699	38014	0'1786	31
32	33,617	307			21'0809	0'4744	38599	0'1831	32
33	33,310	308			20'8740	0'4791	39202	0'1878	33
34	33,002	308			20'6609	0'4840	39823	0'1927	34
35	32,694	308	33'46	68'46	20'4414	0'4892	40462	0'1979	35
36	32,386	308			20'2152	0'4947	41121	0'2034	36
37	32,078	310			19'9821	0'5004	41800	0'2091	37
38	31,768	310			19'7420	0'5065	42499	0'2152	38
39	31,458	311			19'4945	0'5130	43220	0'2217	39
40	31,147	312	30'00	70'00	19'2395	0'5198	43963	0'2285	40
41	30,835	313			18'9769	0'5270	44728	0'2357	41
42	30,522	315			18'7064	0'5346	45515	0'2433	42
43	30,207	318			18'4279	0'5427	46327	0'2514	43
44	29,889	319			18'1412	0'5512	47162	0'2599	44
45	29,570	322	26'46	71'46	17'8462	0'5603	48021	0'2690	45
46	29,248	325			17'5427	0'5700	48905	0'2787	46
47	28,923	329			17'2305	0'5804	49814	0'2891	47
48	28,594	332			16'9094	0'5914	50749	0'3001	48
49	28,262	336			16'5793	0'6032	51711	0'3119	49
50	27,926	341	22'87	72'87	16'2399	0'6158	52699	0'3245	50
51	27,585	346			15'8911	0'6293	53715	0'3380	51
52	27,239	351			15'5325	0'6438	54760	0'3525	52

Age.	Living.	Dying.	Mean After-Life-time at each age. (<i>Expectation</i>).	Mean age at death of Females actually living at each age.	Present value of an annu. of £1.	Annu. which £1 will purchase.	Single Prem. which will ins. £1 over the whole term of Life.	Ann. Prem. which will ins. £1 over the whole term of Life.	Age.
53	26,888	357	19'24	74'24	£ 15'1639	£ 0'6595	£ 55833	£ 0'3682	53
54	26,531	363			14'7851	0'6764	56937	0'3851	54
55	26,168	369			14'3956	0'6947	58071	0'4034	55
56	25,799	376			13'9951	0'7145	59238	0'4232	56
57	25,423	411			13'5830	0'7362	60438	0'4449	57
58	25,012	455			13'1731	0'7591	61632	0'4678	58
59	24,557	498			12'7709	0'7830	62803	0'4917	59
60	24,059	536	15'69	75'69	12'3747	0'8081	63957	0'5168	60
61	23,523	574			11'9831	0'8345	65098	0'5432	61
62	22,949	609			11'5955	0'8624	66227	0'5711	62
63	22,340	644			11'2109	0'8920	67347	0'6007	63
64	21,696	678			10'8294	0'9234	68458	0'6321	64
65	21,018	712			10'4508	0'9569	69561	0'6656	65
66	20,306	745			10'0756	0'9925	70654	0'7012	66
67	19,561	777	12'58	77'58	9'7040	1'0305	71736	0'7392	67
68	18,784	810			9'3361	1'0711	72807	0'7798	68
69	17,974	841			8'9730	1'1145	73865	0'8232	69
70	17,133	871			8'6153	1'1607	74907	0'8694	70
71	16,262	898			8'2635	1'2101	75932	0'9188	71
72	15,364	922			7'9186	1'2628	76936	0'9715	72
73	14,442	942			7'5813	1'3190	77919	1'0277	73
74	13,500	958	9'85	79'85	7'2522	1'3789	78877	1'0876	74
75	12,542	968			6'9316	1'4427	79811	1'1514	75
76	11,574	971			6'6208	1'5104	80716	1'2191	76
77	10,603	966			6'3197	1'5824	81593	1'2911	77
78	9,637	954			6'0285	1'6588	82441	1'3675	78
79	8,683	932			5'7477	1'7398	83259	1'4485	79
80	7,751	901	7'52	82'52	5'4773	1'8257	84047	1'5344	80
81	6,850	862			5'2191	1'9160	84799	1'6247	81
82	5,988	814			4'9713	2'0115	85520	1'7202	82
83	5,174	760			4'7354	2'1118	86208	1'8205	83
84	4,414	698			4'5094	2'2176	86866	1'9263	84
85	3,716	633			4'2927	2'3295	87497	2'0382	85
86	3,083	564			4'0885	2'4459	88092	2'1546	86
87	2,519	495	5'64	85'64	3'8916	2'5696	88665	2'2783	87
88	2,024	425			3'7088	2'6963	89198	2'4050	88
89	1,599	359			3'5341	2'8295	89706	2'5382	89
90	1,240	298			3'3686	2'9686	90189	2'6773	90
91	942	240			3'2043	3'1208	90667	2'8295	91
92	702	191			3'0491	3'2796	91119	2'9883	92
93	511	147	4'19	89'19	2'9055	3'4417	91537	3'1504	93
94	364	112			2'7451	3'6429	92005	3'3516	94
95	252	81			2'5618	3'9034	92538	3'6121	95
96	171	59			2'4003	4'1662	93009	3'8749	96
97	112	40			2'1906	4'5649	93620	4'2736	97
98	72	27			2'0153	4'9621	94130	4'6708	98
99	45	18			1'6717	5'9818	95131	5'6905	99
100	27	11	3'11	93'11	1'4311	6'9876	95832	6'6963	100
101	16	7			1'2662	7'8976	96312	7'6063	101
102	9	4			...	...	...	...	102
103	5	3			...	...	...	...	103
104	2	1			...	...	...	...	104
105	1	...			...	...	...	...	105
106	1	1			...	...	...	...	106

In 1861 Mr. Wm. Davis contributed to the *Assu. Mag.* [vol. x. p. 59] a table consisting of cols. D, N, and S, computed on the Columnar method, from Dr. Farr's *Healthy Life T.*, "to enable Act. to compare it with other T." The author says: "I have not added any numerical comparisons; but my own opinion at present is that Dr. Farr's T. is about as much an advance on the *Carlisle T.* as that was on the *Northampton.*"

The 33rd Rep. of Reg.-Gen. contains the preceding T. Dr. Farr says therein: "It has been found by experience that this *Healthy District Life T.* expresses very accurately the actual duration of life among the clergy and other classes of the community living under favourable circumstances."

ENGLISH PROVIDENT INS. CO., LIM.—Founded in 1869, with a proposed cap. of £10,000.

The promoter was Mr. W. Harral-Johnson. We hear no more of the Co. until June, 1871, when it is announced to be winding-up in the Court of Chancery; Mr. F. B. Smart, Liq.

ENGLISH PROVIDENT LIFE ASSU. AND TONTINE ANNU. SO.—Founded in 1855 as the *United Homœopathic* (under which title we shall speak of its early history). In 1856 it took its new title, and issued a prosp., from which we draw the following passages:

It is considered that the revival of the scheme of Tontine Annu., formed on a liberal basis, together with the improvements and benefits now first and exclusively offered by this So., will be generally acceptable to the provident portion of the community, for which care has been taken to provide the absolutely necessary powers in the So.'s special D. of Sett.

Tontines have heretofore been formed by very limited numbers of individuals, each contributing large amounts; and though it is the main object of this So., in reviving such schemes, that the contributions by each annuitant shall be small, to place the benefits of Tontines within the reach of the many, yet Tontines of a larger amount will be opened where friends may unite for the purpose of completing them more quickly.

There will be four classes of Tontines, subdivided into divisions according to the ages of the nominees. The principal sum in each division of classes A, B, and C, will be £1000, contributed in 100 subs. of £10 each, for which an annu. of £40 p.a. will be granted and divided equally amongst the survivors in each division every half-year, who will thus be continually receiving an increased annu. as the numbers become diminished, leaving the principal sum of £1000 divisible at the end of each Tontine equally amongst the survivors.

1. In class A, the principal sums will be distributed amongst the survivors at the expiration of the periods mentioned in the T. 2. In class B, amongst the last 10 survivors in each division. 3. In class C, amongst the last 20 survivors in each division. 4. In class D, annu. will be granted to all who are living at stated ages, commencing 10, 20, and 30 years hence.

Finally:

The above few remarks will readily show that these new features in life assu. are beneficial to all ages. To adults it will give a sum of money that will enable them, at the termination of their Tontine, to purchase an annu. for the remainder of life, or for other purposes; while to parents it offers such opportunities of securing liberal endow. for their children, as cannot, by any other means, be realized from so small a deposit.

The various divisions will only be open for a short period, the number of Tontines being limited.

The scheme did not take; and in 1857 the bus. of the asso. was trans. to the *Kent Mut.*

The Man. was Mr. William John Taylor; the Consulting Act., Mr. W. E. Hillman.

[TONTINES.]

ENGLISH PROVIDENT LIFE ASSU. ASSO.—Projected in Liverpool in 1861 by Mr. James Stephenson. It does not appear to have gone far beyond regis. of title.

ENGLISH RACE.—It is gratifying to find that the health of the English race in North America and in Australasia, so far as we can judge from imperfect documents, is not worse than it is in England, and that those rising communities are eager to adopt all the sanitary improvements of Europe. In some respects they have gone ahead of Europe; I may refer to the magnificent aqueduct pouring the fresh streams of a mountain river into New York since the year 1842, when Paris and London were drinking polluted waters from the Seine and the Thames.—*Dr. Farr*, 1866.

Sir Charles Dilke, in his *Greater Britain*, 1868, sums up his review of the English race as follows:

The countries ruled by a race whose very scum and outcasts have founded empires in every portion of the globe, even now consist of 9½ millions of square miles, and contain a pop. of 300 millions of people. Their surface is five times as great as that of the empire of Darius, and four and a half times as large as the Roman Empire at its greatest extent. [ROMAN EMPIRE.]

ENGLISH AND SCOTTISH CATTLE INS. CO.—Projected in 1849, with a proposed cap. of £100,000, in 10,000 shares of £10. The "proposals for the formation of a Co. to be called," etc., say:

Whilst the community in general have largely profited by the advantages which the assu. of human life, and the ins. of property against fire and sea risk, afford, the Brit. farmer alone, until very lately, has been without the means of securing himself against loss resulting either from disease or accident to his live stock.

Property of this description to an amount exceeding £400,000,000, was thus left unprotected, although in Eng. alone the amount of ins. against fire on farm buildings and farming stock exceeds £56,000,000 ann.

It is to France, Belgium, and Germany, that we are indebted for the introduction of ins. on live farming stock; but although this was projected in those countries in the year 1838, the example was not followed in Eng. until about the year 1844, when *pleuro-pneumonia* made its appearance in this country in its most malignant form, sweeping off, in a short time, whole stocks, and in many instances reducing the unfortunate farmer to bankruptcy and beggary. Many noblemen and influential landed proprietors then formed what are called *Cow Clubs* amongst their tenantry, in which they themselves guaranteed a certain amount to the insurer and shared a portion of the loss. Other clubs also sprung up amongst tenant farmers themselves, but it was soon found that, owing to the very limited circle to which these ins. were necessarily confined, it was impossible to arrive at anything like an average of risk, and that to benefit the insurer and the insured, it must be carried out on a much more extended scale.

The risk of the Co. was proposed in the ordinary way to be limited to two-thirds of value of stock ins., but would in some cases be extended *one-half* or *three-fourths*. Very sanguine estimates were indulged in of the prospects of the Co. No names of promoters or proposed officers were pub.

ENGLISH AND SCOTTISH FIRE INS. CO.—This Co. was projected in London in 1863, with an authorized cap of *two thousand pounds*! Mr. James White was regis. promoter.

In 1864 a prosp. was issued, placing the proposed cap. at £1,000,000, in 100,000 shares of £10. This prosp. said :

The E. and S. Fire Ins. Co. is estab. for the purpose of promoting the bus. of F. Ins. upon principles of security, economy, and liberality.

Upwards of 20 years have elapsed since the estab. of the most recent F. Ins. Co. in Scotland, and during that period the value of insurable property has been considerably more than doubled. Glasgow has been selected for the seat of the chief office in Scotland—a city in which there is no local fire office. In this respect it may be mentioned that Glasgow represents a remarkable contrast to other important cities and towns in the kingdom : no town numbering one-half the pop. of that important city being unrepresented by one or more F. Ins. asso.

The bus. of the Co. will be confined solely to fire ins.: offices so constituted having received apparently a larger amount of public favour than those in which the bus. of fire and life is combined. [COMPLEX INS. ASSO.]

A leading feature of the Co. will be the cultivation of common or first-class ins., namely, upon house property, and goods and furniture in non-hazardous buildings. The experience of F. Ins. Cos. has proved that this is the most profitable of the various classes of risks undertaken; and from the manifestly large amount of such property still unprotected by fire ins., there is ample room for the further development of this class of bus.

Pol. in force for a certain number of years will be entitled to parti. in profits. . . .

The project did not mature under its then title. No names of proposed officers were given.

ENGLISH AND SCOTTISH LAW LIFE ASSU. ASSO.—Founded in 1839 as the “E. and S. Law Fire and Life Assu. and Loan Asso.,” with an authorized cap. of £1,000,000, in 20,000 shares of £50. An early prosp. said :

This assu. affords every advantage consequent upon a well-digested and salutary system of assu., and embraces every description of risk contingent upon Fire and Life; and its leading features are—
1. An extensive legal connexion, with a direction and proprietary composed of all classes. 2. A liberal system of loan, whether for a term of months or years, or upon annu. in small or large amounts. 3. A union of the English and Scottish systems of assu., by the appointment of a board in Edin., and by the removal (by the terms of the D. of Sett.) of all difficulties experienced by parties in Eng. effecting assu. with offices peculiarly Scotch, and *vice versa*. 4. A large protecting cap., relieving the assured from all possible responsibility, and guaranteeing at the same time a certainty of the prompt settlement of every claim; while it also admits every pol.-holder, assured for the whole term of life, to a full parti. in two-thirds of the profits of the inst.

The features of the F. department are then set out fully. The only noticeable feature here was the following :

The prems. for assu. against fire are charged at the usual moderate rates : in add. to which the proprietors of freehold or leasehold property, *if such property be ins. in this Office*, will be afforded every facility of obtaining advances for stated periods, in sums proportionate to the value ; on condition of their lives also being insured, to guard against any contingencies.

The D. of Sett. of the Co. bears date 24 Dec. 1841, and recites :

Whereas the said Co. was estab. on the 11th day of Oct. 1839, and the bus. thereof was commenced on the 26th day of Dec. 1839, and assu. have already been effected, and loans granted to a considerable amount by the persons who have acted for the time being as Directors of the said Co.

We shall notice only such clauses of the Deed as seem to us to have a practical bearing upon the conduct of the bus. The qualification of directors, 100 shares (15). No person shall be qualified to hold the office of director, auditor, trustee, act. and sec., or sol., who shall have become bankrupt or shall have been discharged under any Act for the relief of insolvent debtors, or who shall have compounded with his creditors (18). Twenty-one days' notice to be given by any person proposing for office of director or auditor (28). The board of directors shall have power to appoint agents of the Co. in any part of the world (Scotland excepted), and the Edin. board shall have power to appoint agents of the Co. in Scotland ; with such powers, remuneration, and restrictions as they shall respectively think proper, and to revoke, etc. (38). The directors, auditors, trustees, and other officers to be indemnified (39). The boards of directors in Lond. and Edin. to meet every week (42). Edinburgh board to have sole discretion as to acceptance or rejection of risks offered to it (56). In case of suicide or death by duelling, board may pay whole or part of sum insured (60). All pol. payable in Lond., except such as are issued in Scot. (64). Power to delay payment of claims arising from extraordinary causes (66). Shares of the Co. may be purchased out of Guarantee Fund for benefit of Co. (84). Quorum for ordin. or special gen. meeting, 20 ; except for any alterations of Deed, when 30 [formerly 40] (89, 90). Proprietors of 10 shares and upwards may vote at gen. meetings as per scale (100). Calls not to exceed £2 p. share (115). The funds of the Co. to be divided into 4 portions, to be denominated “The Guarantee Fund” ; “The Fire Assu. Fund” ; “The Life Assu. Fund” ; and “The Annu. Fund” ; and separate and distinct accounts thereof shall be kept (131). Provisions to be inserted in every contract that no shareholder shall be liable beyond his subs. cap. (152). Directors may recommend dissolution of Co. (157). Arbitration clause (160). Co. may apply for special Acts, or seek incorp. under any gen. Act (162). Finally,

And whereas it may be necessary to transmit these presents from place to place for execution by proprietors or for other purposes, and in order to guard against the loss or destruction thereof, it has been determined that two parts thereof, duplicate of each other, should be prepared and executed; and inasmuch as many of the persons who shall execute one part may not execute the other part, it is expedient, in order to preserve conformity between the two, that power should be given to some person, as the attorney of each party who shall have executed one part only, to sign and deliver the other part on his or her behalf.

An attorney for such purpose was accordingly appointed.

Mr. Edward Baylis was the founder of the Co., and was appointed by the D. of Sett. (s. 31) Act. and Sec. of the Co. His connexion with the Asso. was determined in the autumn of 1842. Mr. J. S. Pigeon was then appointed Act.

The Co. transacted but a small fire bus., and absolutely discontinued it in 1843.

In 1844 Mr. James Butler Williams was appointed Res. Act. and Sec. He resigned and was succeeded by his brother, Mr. John Hill Williams, in 1846. The latter has conducted the operations of the Co. with great success.

In 1861 considerable alterations were made in the D. of Sett., and among the special resolutions then passed was the following:

That inasmuch as the bus. of F. Ins. has for many years not been transacted by the Co., the bus. of the Co. having for some time been carried on under the name or style of the E. and S. Law Life Assu. and Loan Asso., the bus. of the Co. shall be henceforth continued under the altered name or style of the E. and S. Law, etc., and the directors shall not effect any ins. against loss or damage by fire, unless they shall be previously authorized or directed so to do by a resolution of two special gen. meetings of the Co.

Among the alterations then made was that causing the investigations for and distribution of surplus to be made quinquennially, instead of septennially: while the proportion of profits to be reserved to the proprietors was reduced from one-third to one-tenth.

In 1869 the non-par. rates of the Co. were reduced.

At the investigation for surplus as at close of 1870, the following interesting details were pub.:

The principles upon which the valuation is made are in the discretion of the Board of Directors and the Act., and the distribution of the profits is regulated by the deed of constitution and the resolutions indorsed thereon, which provide that the profits arising from the Life Assu. Fund shall be appropriated by giving one-tenth to the proprietors, to be applied by way of increase to the ordinary div. during the next succeeding 5 years, and nine-tenths to be applied as a rev. bonus to those pol. entitled to parti. in profits.

For pol. of assu.—the *Carlisle T. of Mort.* For annu.—the *Mort. T. of the Government Annuitants* [is used in valuations].

The rate of int. assumed in the calculations is 3 p.c. The whole of the "loading" added to the pure or net prem. to provide for future expenses and profits, is reserved for that purpose.

All pol. effected on the parti. scale under full prem. for the whole term of life, and also all endow. assu. pol. effected on the parti. scale and in force at the time of the division, are entitled to share in profits.

The rate of int. at which the Life Assu. Fund had been invested during the quinquennium was as follows:—1866, £4 9s. 4d. p.c.; 1867, £4 8s. 10d. p.c.; 1868, £5 0s. 11d. p.c.; 1869, £4 13s. 2d. p.c.; 1870, £4 11s. 1d. p.c.

The paid-up cap. standing to credit of Proprietors Fund was £70,000.

The general features of the Co. are liberal; while its financial position is sound and flourishing, as may be gathered from the annexed T., showing the leading financial features of the Co., as exhibited at each of its quinquennial investigations for surplus:

Year ending 25 Dec.	New pol. issued.	Insuring.	New prem.	Total income.	Total pol. in force.	Total ins. in force.	Life Assu. Fund.	Surplus distributed to pol.-holders.	Claims paid from commencement.
		£	£	£		£	£	£	£
1846	290	214,230	7045	50,126	1499	994,281	63,855	21,593	48,556
1853	339	309,049	10926	82,732	2226	1,471,416	175,191	26,017	159,365
1860	357	303,300	9464	92,505	3086	1,911,159	327,683	56,780	347,449
1865	521	312,151	9960	129,211	3839	2,517,981	479,205	55,831	531,400
1870	562	427,722	14085	154,485	4988	3,229,784	613,433	67,831	865,315

ENGLISH AND SCOTTISH MARINE INS. CO. LIM.—Founded in 1863, with an authorized cap. of £1,000,000, in 10,000 shares of £100 each. Mr. John Alers Hankey was the promoter, and Mr. A. J. Dumas the Underwriter of the Co. A very considerable bus. was transacted, and heavy losses were sustained. The Co. passed into liq. in 1868.

Out of the winding-up of this Co. arose *Maclure's case*, before the Lords Justices in 1871, wherein it was held that the agent of an Ins. Co., who had entered into an agreement to act in that capacity for a term of years, in consideration of a fixed salary and commission on profits, is not entitled to recover damages in respect of the loss of commission occasioned by the Co. going into voluntary liq. before the expiration of the term.

ENGLISH, STEPHEN, founder, ed., and proprietor of the *Ins. Times*, N.Y. We must content ourselves with a few passages from contemporary ins. authorities regarding Mr. English and his journal. In an art. in the *Review* (Lond.), 1 February, 1870, drawn from American sources, we find the following:

The *Ins. Times* founded and conducted by Mr. S. English is, *par excellence*, at the head of the list.

It owes its existence to the high sense of honour and of duty to the public which Mr. English always cherishes. He had been for some years the guiding star of the *Ins. Monitor*, which he raised from an insignificant sheet to the first rank among the *Ins.* papers of the day. A difference subsequently arose between him and the late proprietor, Mr. T. Jones, junr., about the beginning of the year 1868, relative to the admission of advertisements of bogus cos. into the cols. of the *Monitor*, side by side with those of sound inst.—a course denounced by Mr. English, and which led to his voluntary retirement from the editorial chair to estab. the *Ins. Times*, which is now the leading authority on all matters connected with *Ins.* . . .

From the *Agent and Pol.-holder*, 15 October, 1873, we take the following passages:

As a journalist, he has made mistakes (who has not?), but as a whole, those cos. needing the most assistance as young and feeble cos., have probably found a better friend in Stephen English and the "*Ins. Times*" than any other.

No man can accuse Mr. English of cowardice. The records of the past year show that he has dared to attack the strongest *ins. corp.* in the world, and so far stands at no disadvantage as to the correctness of his position assumed.

It is true that Mr. English has rested 7 months in Ludlow, but this is no evidence that he was in error. Better men have done the same. There is a jury of twelve, also of thrice twelve million, yet to be heard from. We do not attempt to anticipate the final verdict. But this we do say, that the bound vols. of the *Ins. Times*, owned and edited by Stephen English, contain as full, clear, comprehensive, truthful, and reliable records of the experiences of fire and life *ins.* in America, its laws and errors, as can be found.

In 1871 there was pub. *Cost of Ins.*, by Walter C. Wright, with introduction by Stephen English.

The *Ins. Times* was estab. in January, 1868, and is pub. monthly. We observe that its circulation is steadily increasing in the U.K.

ENGLISH UNION ASSURANCE.—A Co. under this title was projected in 1862, with limited liability, by Mr. James C. Hardy. It did not go forward.

ENGLISH UNION LIFE AND ANNUITY CO.—This Co. was projected in 1863, with an authorized cap. of £10,000. The promoter was Charles Palmer Harding. It did not go forward.

ENGLISH WIDOWS FUND AND GENERAL LIFE ASSU. ASSO.—Founded in 1847, with an authorized cap. of £200,000, in 10,000 shares of £20. The prosp. said:

It would be superfluous, in the present day, to impress upon the upper and middle classes of society, by any new argument or illustration, the utility of life assu. The paramount importance of such inst. is acknowledged by every individual in these classes, whose income is dependent on his own exertions, or determinable with his life.

To the nobility and gentry, who are desirous of transmitting their estates unincumbered,—to the large and deserving class of clergymen,—to the army and navy,—to the medical and other professional men,—and to all those whose incomes are necessarily exposed to vicissitudes, and who cannot calculate with certainty upon any other provision for their families,—life assu. offers an easy, secure, and acknowledged resource.

But the operation of these inst. has been, as yet, almost entirely restricted to persons in wealthy or easy circumstances, whilst those who constitute the *industrial* classes of the pop. have never hitherto had their attention sufficiently drawn to the subject, or been provided with adequate opportunities of availing themselves of the great benefits of life assu.

It is the object of the *English Widows Fund*, etc., whilst addressing itself to those who already appreciate and resort to life assu., to extend the same advantages to the agriculturist and shopkeeper, the clerk, the artisan, the domestic, and especially to that large and influential body of the people who form the present class of savings bank depositors.

Among persons who invest their earnings in savings banks are found the best elements of society—integrity and prudence; and this asso. directs the particular attention of such persons to the benefits now offered; for it must be apparent to them that, by means of a small deduction from their savings, the *certainty* is insured of a considerable sum payable at death, for the support of their widows and orphans.

Then follows a list of the so-called "advantages offered by this So.," in which there is nothing worthy of the slightest notice.

The founder of the Co. was Mr. Thomas Robinson, who became its Resident Director. Mr. Thomas Walker, B.A., was Act. and Sec. Mr. John Brokenshir was Sup. of Agents.

The bus. of the Co. was very small, and presented a painful contrast to that other Widows Fund, north of the Tweed, with which the name of the present Co., with design or otherwise, invited a contrast. The designation of the "widow's mite" would have been more appropriate in this case.

In 1858 the Co. took over the bus. of the *Commercial* (1856), which Co. had previously absorbed the *English and Cambrian* (1850). A change in the man. followed. Mr. John Pope Cox then became Sec. Mr. George Fryer, Sup. of Agents. The Co. had branch boards in Manchester and Bradford.

At length, in 1860, it was intended to end the woes of the Co. by amalg. with the *British Nation*. The D. of Sett. of the Co. (dated 29 October, 1847) sanctioned such an arrangement; but required a dissolution of the Co. as a necessary consequence.

The trans. of the bus. was carried out by a deed dated 29 October, 1860. By this deed it was agreed that the *British N.* should purchase the Life Assu. and Annu. bus. of the *English Widows* and the benefit and advantage of their pol., and all prems. and other moneys that might become due after the 15 October, 1860. The *British N.* also undertook to pay the sums assured by all pol. of the *English W.*; and further to pay £3000 and certain other sums in consideration of the trans. of the bus.

In 1861 a petition was presented by a creditor for a winding-up order against the *English Widows*; and on the 14 June, 1862, an order was made; Mr. R. P. Harding being appointed Liq. The asso. was, however, never finally wound up.

In 1865 the *British N.* trans. its bus. to the *European*; and since the failure of the *European*, various questions have arisen regarding the liability of the shareholders in the *English W.*

In February, 1873, the facts were brought before Lord Westbury, under the *European* arbitration, when he laid down the following important ruling:

Where a creditor proves his claim against a co., with regard to which an order to wind up has been made before the passing of the Cos. Act, 1862, but the winding up has not been completed finally, a supplemental order to wind up will be made, founded to a certain degree on the previous order, and upon the terms of not disturbing anything that has been rightly done under that order.

This was in *Carpmael's* case. The shareholders of the *English Widows* find themselves still within the meshes of Chancery.

ENGLISHMAN'S INDUSTRIAL LIFE.—This Co. was projected in 1853, by Mr. John Sheridan, for insuring the lives of the industrial classes; but it did not manage to insure its own, and died early, not much lamented.

ENHANCED VALUES.—By enhanced values is meant the rise in prices after the property is insured. While enhanced values do not increase the *degree* of hazard (aside from the moral feature), they do increase the liability of the underwriter to loss upon the principle of *partial* ins. Enhanced values are equivalent to partial ins. Hence higher valuations call for a greater aggregate of prem. for the proper compensation of the insurer: as the *actual* ins. value increases with the enhanced cost price.—Griswold's *Fire Underwriter's Text Book*, 1872. [DUTIES.] [NET VALUES.]

ENLARGER L'ESTATE.—A species of release which enures by way of enlarging an estate, and consists of a conveyance of the ulterior interest to the particular tenant; as if there be a tenant for life or years, remainder to another in fee, and he in remainder releases all his right to the particular tenant and his heirs: this gives him an estate in fee.—*Stephens' Commentaries*.

ENROLMENT.—See INROLMENT.

ENSOR, GEORGE, pub. in 1818: *An Enquiry concerning the Pop. of Nations: containing a Refutation of Mr. Malthus's Essay on Pop.* [POPULATION.]

ENTAIL.—An estate settled with regard to the rule of its descent.—See ESTATES TAIL.

ENTAILED ESTATE.—See ESTATE TAIL, where the powers for barring entail are also discussed.

ENTAILED MONEY.—Money directed to be invested in realty, to be entailed; under 3 & 4 Wm. IV. c. 74, ss. 70, 71, 72 (1833).

ENTERIC FEVER.—A term now frequently employed as synonymous with typhoid fever. Dr. Harley has, however, suggested *entero-mesenteric* as more characteristic than *enteric* when applied to fever, as marking out the disease from all others, and pointing to a constant feature. We prefer for the present to adhere to the classification of the Reg.-Gen., and shall therefore treat of this under the designation of TYPHUS FEVER.

ENTERINE.—The material substance by means of which *Dysentery* is supposed to be disseminated.

ENTERING AGE.—The age of insured lives at the time of entering into the contract or office. This may or may not differ from the "office age," according as the life may or may not be "put up," by reason of impaired health or otherwise. [OFFICE AGE.]

ENTERITIS.—Inflammation of the bowels. Its symptoms are: pain over the abdomen; thirst, heat, excessive restlessness and anxiety; sickness; obstinate constipation; and a hard, small, and quick pulse.

In the mort. returns of ins. asso. this has not been recorded as at all a frequent cause of death.

ENTERITIS, DEATHS FROM (Class, LOCAL; Order, Diseases of the *Digestive Organs*).—The deaths from this cause in E. and W. show a tendency to decrease. In 10 consecutive years they were as follows: 1858, 3309; 1859, 3416; 1860, 3154; 1861, 3333; 1862, 2911; 1863, 3234; 1864, 3164; 1865, 3289; 1866, 2928; 1867, 2858; showing a variation from 172 deaths p. million of the pop. in 1858 to 159 in 1863, and 135 in 1867. Over a period of 15 years ending 1864, the deaths averaged 180 p. million; over 5 years ending 1864, 157 p. million.

The deaths in 1867 were: males, 1491; females, 1367. About two-fifths of the deaths occur under age 5; and the remainder over the other periods of life; steadily increasing up to 70, and then rapidly decreasing.

ENTEROCELE.—A hernia or rupture, the contents of which are a portion of the intestine.

ENTERPRISE A. I. MARINE INS. CO.—Prov. regis. 15 December, 1852, but never completely regis.

ENTERPRIZE ASSURANCE.—This Co. or Club was projected at Sunderland in 1853 by H. Alcock and sixteen others; but we hear no more of it.

ENTHETIC DISEASES.—These rank as Order 2 of the Class ZYMOTIC DISEASES, and embrace syphilis, stricture of urethra, hydrophobia, glanders, or four forms in all, each of which is spoken of under its proper head. The deaths in E. and W. from diseases of this Order vary but very slightly, increasing with the pop. In 1858 they were 1195, in 1862, 1449; in 1867, 1909. On an average of 15 years ending 1864, they were at the rate of 62 p. million of persons living.

The deaths in 1867 were thus divided : males, 1068 ; females, 841. Of the males, 659 died under one year, and 710 under 5 ; 1 died between 5 and 10 ; 17 between 20 and 25 ; 70 between 45 and 55 ; and 45 between 65 and 75 ; and 2 above 85. Of the females, 582 died under 1 year, and 631 under 5 ; 1 died between 5 and 10 ; 42 between 20 and 25 ; 26 between 45 and 55 ; and 3 between 65 and 75, none surviving this age.

Dr. Farr says in 34th Rep. of the Reg.-Gen., reviewing the causes of deaths in 1871 :

Among the enthetic diseases propagated by direct inoculation, syphilis is the most fatal, for to it 1742 deaths were referred. The rate of mort. by this disease is lower than it was in the three previous years ; and we may hope to see it still further reduced if proper precautions are taken to stop it at its sources. [DISEASES, PREVENTION OF.] [SYPHILIS.]

ENTIRE CONTRACT.—A contract wherein everything to be done on the one side is the consideration for everything to be done on the other.—*Wharton*.

ENTIRE TENANCY.—A sole possession by one person, called “severalty,” which is contrary to several tenancy, where a joint or common possession is in one or more.—*Wharton*.

ENTIRE WALL.—A brick or stone wall, without any openings. This is sometimes called a “blank wall,” or “solid wall.”

ENTIRETIES, TENANCY BY.—Where an estate is conveyed or devised to a man and his wife *during coverture*, they are said to be tenants by entireties : that is, each is said to be seised of the *whole estate*, and neither of a part. The consequence is that the husband's conveyance alone will not have any effect against his wife's surviving. The husband being seised of the whole estate during coverture, either in his own right, or *jure uxoris*, can of course part with that interest ; but to make a complete conveyance of all interests held in entirety, the wife must concur. This species of tenancy seems to be an exception to the rule that the husband and wife are one person in law ; if they are to be considered as one person, the husband should be able to convey alone, which in this case he cannot do.—*Watkins on Conveyancing*.

ENTIRETY (from the French *entier*).—The whole ; completeness.

ENTIRETY OF POLICY (Fire).—In the U.S. there have been several decisions regarding Fire Ins. contracts on points which we believe have never arisen before our Courts. As an instance, where a pol. was taken for one sum, specified to be partly upon a factory and partly on a blacksmith's shop, and contained a provision that “if the premises should be put to a use denominated hazardous, etc., then so long as the premises should be so used, the pol. should be void ;” the factory was so used, and subsequently burned :—*Held*, that the contract was entire, and that the pol. was avoided as to both factory and shop. Mr. Griswold quotes the decision, but does not give the name of the case, or any other reference.

It has also been held in several cases that where partners are insured, and one or more of them retires, an action cannot be brought under the pol. in the names of the firm, as they stood at date the ins. was effected.

ENTOZOA.—A name given to an extensive series of low organized invertebrate and generally vermiform, animals, of which the greater part are parasitic on the internal organs of other animals. A number of well-known forms infest the human body.

ENTRANCE MONEY.—It was the practice of life offices, up to and within the first quarter of the present century, to charge an entrance fee to all who insured their lives. We are not sure if the very earliest offices made any such charge ; but we believe not. The practice appears to have originated with the *Amicable* in 1705. Mr. Babbage, in his *Comparative View*, 1826, says : “It is a practice pursued by a few of the assu. cos. to charge an add. sum on the first payment, which is usually called entrance money. This is generally appropriated to some particular fund, indicated in the deeds of the respective cos.” He names four offices then making the charge : the *Amicable*, 10s. p. £100 insured ; the *Equitable*, 5s. p.c. ; *London Life*, 5s. p.c. ; *Rock*, 5s. p.c. This last, he said, was the only one of the mixed offices then making the charge. [EQUITABLE SO., HIST. OF.]

The *Eagle*, 1807, had the following condition :

If the person whose life is to be insured does not appear at the office, or before one of the Co.'s agents, a fine of 15s. p.c. on the sum insured will be charged (in the first instance only), subject to return, provided the persons whose life is ins. shall appear within 12 months, and the health of such person is unobjectionable.

The *Crown*, founded 1825, did not make the charge ; and its promoters drew attention to the exception. [DEPOSIT MONEY.] [EARNEST MONEY.]

ENTREPOT.—Strictly a warehouse or magazine, where goods brought from abroad may be deposited, and whence they may be withdrawn for export to any other country, without payment of any tax or duty. The term, chiefly used on the Continent of Europe, is equivalent to *bonded warehouse*. The word is not unfrequently employed to designate a seaport, or commercial town, which exports the produce of a considerable adjacent territory, and imports the foreign articles required for its supply.

ENTRY.—In Law, the taking possession of lands and tenements where a man has title of entry. The term is also used for writ of possession.

ENTRY, BILL OF.—An account of the goods entered at the Custom House, both inwards and outwards. It must state the name of the merchant exporting or importing ; the quantity and species of merchandize ; and whither transported, and whence. [CUSTOMS BILL OF ENTRY.]

ENTZ, JOHN F., Act. of *New York Life Ins. and Trust Co.* Mr. Entz submitted to the National Ins. Convention, 1872, a paper: *Suggestions of Reform in the Practice of Life Ins., and Exposure of some grave errors affecting its Usefulness.* This paper appears in the official rep. of the Convention [session 2, p. 77]. He contributed to the *Ins. Monitor*, N.Y., in 1872, several able papers: *The Mysteries and Blunders in Life Assu.*, from which we have quoted in these pages.

ENUMERATION OF THE PEOPLE.—See CENSUS; POPULATION.

ENUMERATORS.—Persons appointed by the Superintendent Registrars, under the authority of the Census Commissioners, to deliver, collect, and verify the schedules employed in the enumeration of the people.

ENURE.—To take effect; to take place; to operate, etc. Thus when a remainder-man releases all his right to the particular tenant and his heirs, such release is said to *enure* by way of enlargement, *i.e.* the release of the fee by the remainder-man to the particular tenant operates (or enures) by enlarging the estate of such particular tenant.—*Littleton*, 465.

EON, CHEVALIER D'.—For remarkable account of ins. wagers regarding the sex of this once famous personage, see GAMBLING INS.

EPHEMERA (from the Greek, *daily fever*).—A fever which runs its course of the cold, hot, and sweating stages, in a period of 12 hours.

EPICUREANS.—Followers of the tenets of Epicurus, a philosopher who lived from B.C. 337 to B.C. 270, and taught during the latter half of his life at Athens. The name of Epicureans has become the general designation of those who either theoretically or practically make pleasure the chief end of life and the standard of all virtue. It is more popularly applied to those who make gastronomic science one of their chief aims. The influence of Epicureanism upon the progress of pop. has been the subject of much discussion by philosophic writers on the laws of pop. The general belief is that it lessens productiveness.

EPIDEMIC (from the Greek, signifying *among the people*).—An infectious or contagious disease, which attacks many people at the same period and in the same country—"rages for a certain time, and then gradually diminishes and disappears, to return again at periods more or less remote." Thus, Asiatic cholera, influenza, scarlet fever, measles, etc., frequently appear as *epidemics*: that is, are found to prevail in certain parts of a country, while the adjacent districts are free from their ravages. It is essential to the medical notion of an *epidemic* that it be of a temporary, in contradistinction to a permanent character; though isolated cases may occasionally be observed in districts once visited by the epidemic. It differs from *endemic*, inasmuch as the latter class of diseases are of a more permanent nature, and prevail only among certain people, and in certain districts.—*Brande*.

EPIDEMIC COLIC.—A fatal disease known by this designation has occurred from time to time over a period of many centuries in Ireland. The Census Commissioners for Ireland, 1851, include in their Rep. on Causes of Deaths [vol. i. part v. p. 431] a chronological T. of these outbreaks, which, however, they now class with cholera.

EPIDEMIC DISEASES.—Diseases particularly and peculiarly the result of epidemics, or of that class.

EPIDEMICAL.—Subject to epidemics. Conditions leading to the recurrence of epidemics.

EPIDEMICS (GENERALLY).—In a thinly-populated, uncultivated country, the indigenous plagues may be generally traced to marshes, to famines, or to the congregation of great multitudes in the same spot for superstitious or for warlike purposes. As civilization dawns, cities are constructed; but they are at first rude inventions, where the supplies of air, water, and food are irregular, the narrow streets shut out the sun, and the dirt, the animal excretions, and decayed organic matter are suffered to infect the air. In a high temperature the effluvial atmosphere becomes a deadly poison; and it is only as science advances, and the construction of cities is improved, that epidemics decline.

In England before the Norman Conquest there were no large cities; the pop. was scattered over the country, then densely wooded, marshy, and partially tilled. Grain was cultivated; but swineherds and shepherds formed a considerable portion of the pastoral, rather than the agricultural Saxons. Bread and beer were made; but fish, particularly eels, and flesh, especially pork fed on acorns, were comparatively more abundant. The meat was killed and salted in the beginning of winter to save fodder. Three-fourths of the pop. at the time of the Conquest were slaves. In such a state of society, with an imperfect cultivation of the soil, and incessant intestine wars, neither capital nor the stock of provisions could accumulate. Famine, in the words of the Saxon chroniclers, scoured the hills. Several severe dearths are recorded in the chronicles; and pestilence followed in their train. Murraims were frequent. Fever and dysentery were epidemic.—Dr. Farr, Art. Vital Statistics, in McCulloch's *Brit. Empire*, 1854.

Under FAMINES, and also under PLAGUES, we shall again have occasion to revert to these circumstances of our early hist., and to the consequences which followed.

The diseases of the epidemic class follow laws of their own; they remain nearly stationary during months, years, and, as we learn from medical history, centuries; then suddenly rise, like a mist from the earth, and shed desolation on nations—to disappear as rapidly or insensibly as they came. The pestilences of ancient history, the plagues of England, cholera, influenza, smallpox, and typhus, are examples of this peculiar tribe

of diseases. Epidemics have furnished much matter for discussion, and still offer large scope for inquiry. They have been attributed to terrestrial emanations, to the influence of the stars, to mysterious changes in the atmosphere, to heat, to animalcules, to deteriorated food, to contagion; and acting upon the latter doctrine, it has been assumed that the prohibition of direct intercourse with districts in which they prevail would protect the inhabitants of a country from invasion.—Dr. Farr, 2nd Rep. of Reg.-Gen. 1840.

An analogy between many of the phenomena of zymotic diseases and the ordinary process of fermentation was recognized by Hippocrates, and has been observed by many other early writers on this subject. Their idea was that a poisonous ferment, existing in the atmosphere, entered the mass of blood, and induced in it a series of changes which gave rise to the excessive heat and other peculiarities of that class of diseases. At the present time this doctrine, modified by the discoveries of Liebig and other chemists, has been adopted by most physicians, and forms the basis of the classification of diseases framed by Dr. Farr and adopted by the Reg.-Gen. It thus supposes living germs to exist in the atmosphere, which, when introduced into the body, give rise to a specific and regular series of morbid actions, pursuing a definite course in a definite time, as in smallpox—those germs being developed and multiplied, and producing others capable of reproducing in other bodies the same succession of changes. [DISEASE, GERM THEORY OF.] Other pathologists have supposed that the atmospheric poison acts on the blood chemically, by giving rise to what may be termed catalytic actions; while others, again, believe that some of these volatile organic matters in the atmosphere are capable of acting on the animal body as direct poisons; and that this inanimate volatile matter also furnishes nutrition to the organic germs suspended in the air. These several theories and some others will be passed in review as we proceed.

In 1668 Dr. Wm. Ramesey pub.: *Considerations of the Matter, Origination, and Species of Wormes in the Bodies of Mankind, whereby it doth appear to be an epidemical disease, killing more than by either the sword or plague.*

In 1742 Dr. John Tennent pub. in Edin.: *Epistle to Richard Mead concerning the Epidemical Diseases of Virginia, particularly Pleurisy and Peripneumony.*

Dr. Watkinson, in his work on *Inoculation*, pub. in Lond. in 1777, says of Epidemics:

In London various epidemics do not seem to be governed in their visitation by any fixed period of time; but in the Hague, where the quantity of contagion is probably always as great, in proportion to the number of inhabitants, as in Lond. they have been observed to return every 5 years. In Leyden the time of their return appears to be the same. In Groningen it is every 5 or 6 years. In Switzerland every 6. In some parts of Norway every 7; in others every 10 or 12. And in Bengal every 7 years.

In 1800 Mr. Noah Webster, the famous lexicographer, pub.: *A Brief Hist. of Epidemic and Pestilential Diseases; with the principal phenomena of the physical world which precede and accompany them, and obs. deduced from the facts stated; in which he offers the following sagacious obs.:*

From the date of the earliest historical records, the opinions of men have been divided on the subject of the causes and origin of pestilential diseases. All inquiries of the philosopher and the physician have hitherto been baffled, and investigations, often repeated, have ended without leading to satisfactory conclusions.

In the hist. of opinions on this mysterious subject, there is a remarkable distinction between the ancients and the moderns. The ancients derived most of their knowledge and science from personal obs., as they had very few books and little aid from the improvements of their predecessors. The philosophers of antiquity, attentive to changes in the seasons and to the revolutions of the heavenly bodies, attempted to trace pestilential diseases to extraordinary vicissitudes in the weather, and to the aspect of the planets. Modern philosophers and physicians, on the other hand, unable to account for pestilence on the principle of extraordinary seasons, and disdaining to admit the influence of the planets to be the cause, have resorted to invisible animalcule, and to infection concealed in bales of goods and old clothes, transported from Egypt or Constantinople, and let loose at certain periods, to scourge mankind and desolate the earth.

In both periods of the world, the common mass of the people, usually ignorant, and always inclined to believe in the marvellous, have cut the Gordian knot of difficulty, by ascribing pestilence to the immediate exercise of Divine power; under the impression that the plague is one of the judgments which God in his wrath inflicts on mankind to punish them for their iniquities.

In 1808 Dr. Henry Robertson pub. in Edin.: *A General View of the Natural Hist. of the Atmosphere, and of its Connexions with the Sciences of Medicine and Agriculture; including an Essay on the Causes of Epidemical Diseases.* This writer says:

Besides those diseases which we have mentioned as depending in a great degree on the influence of climate, disorders generally prevalent at the same time in every country, and similar in the description of their symptoms, have frequently appeared in every era of mankind: those are what are denominated contagious and epidemical diseases, whose causes have been supposed to arise from some temporary peculiarity in the constitution of the atmosphere itself, or to be generated by its adventitious mixture with some deleterious matter. There have been some physicians of the highest respectability, who have ascribed febrile contagion to a divine origin; but in later times the followers of the former opinions have been most numerous, though in frequent instances they have failed in maintaining consistently their particular theories; and it is therefore not unusual to find in their writings both of these causes confounded in explaining the same common malady.

From the earliest period that medicine has been cultivated, and its study included amongst the liberal sciences, the cause of general disorders has been assiduously sought after, the dearest interests of society being connected with the research: we therefore find physicians of the greatest eminence for their ingenuity and talents employed in the investigation.

The subject is extremely difficult, not only from the variety and impalpable nature of the causes themselves, but also from the peculiar functions and various idiosyncrasies of the living system on which they act. It is much to be regretted that want of uniformity of opinion is so conspicuous in works on this subject: while one sect obstinately denied the power of adventitious matters existing in

the atmosphere, as being productive of epidemical disorders, others have assumed the appearance of those foreign matters or contagion as the causes by which they are solely excited. At no period has the dispute been agitated with greater keenness than at the present day; and perhaps at no period in the hist. of the world has this subject claimed, in a higher degree, the attention of mankind, from the frequency of the appearance, and the malignity of such disorders.

In 1834 there was presented to the Brit. Asso., and pub. in its Trans. for that year: *Rep. on the State of our Knowledge of the Locus of Contagion*, by Dr. William Henry, M.D., F.R.S., etc., wherein much valuable information is contained on the subject before us:

Epidemics are much more widely diffused than endemics; so widely indeed that they have been imputed to certain conditions of the atmosphere, called *epidemic constitutions of the air*. To this term there can be no objection, provided it involve no hypothesis as to causes. The only legitimate meaning of the word epidemic is, *an acute disease prevailing over the whole or a large portion of a community, at seasons not in general marked by regular intervals, and not traced to local causes*. Though the works of writers on epidemics give us no insight into their causes, yet they contain excellent descriptions of the phenomena.

Of these he gives an outline, from which we propose to avail ourselves of certain passages:

1. Epidemic diseases do not observe any fixed cycles, nor can we at all anticipate the periods of their return. Some epidemics, however, are disposed to prevail most at particular seasons of the year, as in spring and autumn.

2. Epidemics seldom spread suddenly over very extensive regions, but are observed to make a gradual, often a slow, progress from one kingdom to another; from province to province; and even from one locality to another, not far remote. . . . [INFLUENZA.]

3. On the first appearance of epidemics, they are not always distinguished by those symptoms which mark them in subsequent periods. The plague, for instance, for the first few weeks after its first invasion, is frequently unaccompanied by bubos or carbuncles, which are seldom wanting when it has raged long in any place.

4. When diseases of this kind attack any country, they continue to spread until they have reached the period of their most general prevalence, called their *acme*, and then decline. These periods of commencement, acme, and decline, seldom coincide for the same epidemic at different places. Of three localities, for instance, not far remote from each other, the plague which visited Eng. in 1666 was often observed at the same time to be first showing itself in one; to be at its height in another; and to be on the wane in the third. The Asiatic cholera exhibited similar irregularities in this and other countries.

5. Epidemic diseases of the same name differ materially, both as to degree and to symptoms, at different visitations. The epidemic of one year may be almost universally a mild and tractable disease, and that of another extremely severe and dangerous.

6. All the *predisposing causes* enumerated as promoting the spread of contagious diseases contribute also to that of epidemics. The latter also are propagated by some causes of general operation, such as a scanty harvest, or produce of bad quality; a severe winter; a scarcity of fuel; an unusually crowded population; and on some occasions harassing and destructive wars. In some instances the path has been prepared for one epidemic by the previous ravages of another: in other examples the new epidemic has acquired an ascendancy over existing ones, and has either modified or entirely extinguished them. In 1666 the plague imparted much of its own form to a low petechial fever prevailing in London, but minor diseases for a while disappeared. Even the smallpox was superseded by the more powerful malady.

7. In what the influence of atmospheric changes in causing or diffusing epidemics consists, it is impossible, in the present state of our knowledge, to explain. The most diligent obs. has not connected the prevalence of those maladies with any ascertained condition—either physical or chemical—of the general atmosphere. . . . Other causes are necessary to account for those epidemics (cholera for instance) which defy the influence of climate, seasons, and of all changes that are objects of meteorological research. It has been suggested that an 'Epidemic Constitution' of the atmosphere may depend on the presence of some substance alien to its ordinary elements. No fact, however, confirms this supposition, if we except an obs. of Dr. Prout [*Bridgewater Treatise*], that at a period coinciding with the appearance of cholera in Lond., the weight of a given volume of air, making due corrections for differences of pressure and temperature, seemed to rise to a small but sensible amount above the usual standard, and continued above it during 6 weeks. This obs., however, requires to be frequently and carefully repeated, and extended to other epidemics as opportunities occur, before any sound conclusion can be founded upon it.

8. Epidemics have been contrasted with contagious diseases, and supposed to form a distinct and separate class. But it must not be forgotten that certain specific diseases, which by universal consent are allowed to be contagious, at times prevail so generally as to be with propriety said to be epidemic. Such are the smallpox, measles, scarlatina, and hooping-cough. But it is inconceivable that the specific poison, which in each of these instances is the efficient cause of the disease, and which is the undoubted product of vital operations, can be generated by any 'corruption of air,' or by any spontaneous changes in inanimate matter. The only way in which a general condition of the atmosphere can be supposed to influence the spread of specific diseases is, either by rendering it a better vehicle of their respective poisons, or by influencing the predisposition of the body to receive them. But if the view which has been taken of the state in which contagions exist in the atmosphere be correct [viz. that a chemical affinity exists between vapours and atmospheric air], temperature alone, by modifying the elasticity of those vapours, can affect their diffusion. It is well known, however, that ascertainable conditions of the atmosphere, as to heat or cold, moisture or dryness, and sudden transitions from one state to its opposite, produce in the animal body a predisposition to receive contagion. The same atmospheric variations may act also as exciting causes, calling into action contagious poisons already admitted into the system, but not yet manifested by the usual phenomena; and when they operate on numbers, may occasion those sudden and violent outbursts of epidemic diseases, of which several examples are on record. Other general influences, indeed, may prove exciting causes of such outbursts. They have followed closely, for example, upon seasons of riot and intemperance, and have spread rapidly in situations where those diseases were previously confined to a few and scattered individuals.

Finally he remarks, with philosophic intuition:

It is equally unfavourable to the progress of knowledge to over-estimate what we know, as to shrink from the just appreciation of difficulties opposed to its further advancement. On the subject of epidemics, they who have inquired the most will be most ready to admit, that our actual knowledge is bounded by very narrow limits. But we are not on that account to despair. The genius of philosophers of our own age has unfolded the most astonishing truths with respect to the subtle agents—light,

heat, electricity, and magnetism. Every new conquest that science achieves, enlarges our powers over nature; and we are fully entitled by the past to hope, that the physical condition of man will in future be progressively improved by his acquiring a command over external agents, which have never yet been subjected to his knowledge and control.

The 1st Rep. of the Reg.-Gen. pub. 1839, contains a letter from Dr. Farr, indicating the advantages and uses which would flow from a continuous record of (*inter alia*) deaths and their causes :

One of the many obvious applications of the facts will be to the promotion of practical medicine. The extent to which epidemics vary in different localities, seasons, and classes of society, will be indicated by the registered diseases; and the experienced practitioner, wherever he may be placed, will learn to administer remedies with discrimination, and with due reference to the circumstances of the pop. . . . The modifications in the character of diseases, and in the medical treatment, are indicated perhaps more accurately by the prevailing epidemics than by either the temperature, the hygrometricity, or any other appreciable condition of the atmosphere.

In a paper read before the British Asso. in 1840, by Dr. Robt. Cowan : *Vital Statistics of Glasgow, illustrating the Sanatory Condition of the Pop.*, we note the following passage :

The prevalence of epidemic diseases depends upon various causes; but it is demonstrable that their rapid and general diffusion must be aided by many concurrent circumstances, among which certain states of the atmosphere and contagion must be ranked; but the most influential of all is poverty and destitution. In every one of the epidemic fevers which have ravaged Glasgow, its progress has been slow, unless extreme destitution has existed; and it is only when contagious fever, that unerring index of destitution, has prevailed, and influenced the selfish fears as well as the benevolent sympathies of the inhabitants, that any active, though temporary, measures have been taken to alleviate the existing distress. The fever abates for want of *materiel*, and the wants of the poor remain unnoticed till its next recurrence.

He gives several remarkable illustrations in support of his views.

In the 2nd Rep. of Reg.-Gen., pub. 1840, Dr. Farr says :

Epidemics appear to be generated at intervals in unhealthy places, spread, go through a regular course, and decline; but of the cause of their evolutions no more is known than of the periodical paroxysms of ague. The body, in its diseases as well as its functions, observes a principle of periodicity; its elements pass through prescribed cycles of changes, and the diseases of nations are subject to similar variations.

If the latent cause of epidemics cannot be discovered, the mode in which it operates may be investigated. The laws of its action may be determined by obs., as well as the circumstances in which epidemics arise, or by which they may be controlled.

The Reg.-Gen. in his Quarterly Rep. Dec. 1846, referring to the extraordinary mort. of Manchester and Liverpool in that year, said :

As the different families of men are of one kind, and of one blood, they have diseases in common. Like living things, epidemics do not cease with the circumstances in which they are produced; they wander to other places, and descend to remote times. The plagues of the Eastern Empire and the 'black death' depopulated the western world; the Egyptian ophthalmia blinded thousands in Europe; the *febris castrensis*—a typhus called *fièvre meningite catarrhale de congelation*, by Larrey—which broke out in the French army after their disastrous retreat from Moscow, became contagious, and committed terrible ravages among the peaceful citizens of Poland, Prussia, Saxony, Germany, and France; the cholera epidemic, generated in the miserable population of Asia, on the banks of the Ganges, traversed England from Sunderland to London, and the Land's End. If all nations, however remote, are liable to suffer from each other's maladies, and have, therefore, a direct interest in each other's well-being, the principle holds with ten-fold force of the provinces of the same kingdom, and the inhabitants of the same cities. The unhealthy and miserable parts of the pop., who are left with an imperfect claim to relief on the property of their native soil, exercise in a variety of ways a deleterious effect on the rest of the empire. . . .

Again, in his Rep. for the Michaelmas quarter, 1847, the Reg.-Gen. remarks :

The great historical epidemics have diminished in intensity; and there appears to be no reason why they should not be ultimately suppressed, with the advances of the population among which they take their rise. Their origin is obscure, but influenza appears generally to become first epidemic in Russia, cholera in India. . . . The epidemic cholera which reached England in 1831 broke out at Jessore, near Calcutta, in 1817, and destroyed 10,000 persons.

In the *Companion to the Almanac*, 1849, there is contained an art. *On the Variola Ovis*, wherein the writer says :

Pestilential epidemics, or contagious diseases, have made havoc at various epochs among the domestic animals which man justly regards as the most valuable of his possessions—horses, sheep, horned cattle, and dogs have been swept away by thousands—and in his turn man has also been involved in the withering blast of desolation. To attempt even a cursory hist. of the malignant epidemics or murrains of which ancient records give us notice, and which in more modern days have from time to time desolated, in different portions of Europe, the homesteads and pasture grounds of the agriculturist, would be to involve ourselves in a labour of length and difficulty; besides which we should wander too far from our present object.

There is then given a very interesting epitome of the subject immediately before the writer.

Dr. Guy considers that even in these days an exotic epidemic may multiply by three the usual mort. of the class of diseases to which it belongs: and he gives by way of example the effect of the cholera visitation of 1849 upon the zymotic class. The deaths in London in 1850, a healthy year in this class, were 9980—in 1849 they had been 28,313: to which might fairly be added the excess of deaths from diarrhoea and dysentery, and the case would be more than proved.—*Public Health*.

In his 13th Rep. pub. 1854 [returns for 1850], the Reg.-Gen. remarks :

It has been stated that an epidemic is invariably followed by a period of low mort., which is accounted for on the supposition that the weakly die of the epidemic, who under ordinary circumstances would die in a year or two years subsequently of some other disease. This, however, requires further investigation. In the former epidemic of cholera (1832) the decline of the mort. in the subsequent year was inconsiderable: but in that year the epidemic had not completely subsided.

In 1853 Dr. John Snow, M.D., pub. a work : *On the Continuous Molecular Changes in relation to Epidemic Diseases*. Dr. Farr speaks very highly of the theory of Dr. Snow, as we have seen in our art. CHOLERA, ASIATIC, under date 1849. It is too scientific to be followed by us here.

M. Jules Guérin, in the *Memoirs* of the Imperial Academy of Medicine for 1853 and 1854, remarks that "the study of epidemics, submitted as yet to too few regulations, and too much left to individual choice, has never rendered the service it is capable of yielding to science, and to mankind." He continues :

Considered in their highest characteristics, epidemics are the great manifestations of a sole and identical cause which impresses a modern and well-marked character on all its products, leaving to surrounding nations only a limited and secondary influence.

It results from this predominance of the great epidemical cause, that all the diseased individualities in the same epidemic have a general and principal resemblance, and exhibit only particular and accessory differences.

As a consequence of this general proposition, epidemics become immense centres of obs., in which the extent, number, and diversity of the facts, and the variable conditions of their manifestations, are constantly throwing light upon the most obscure problems of disease. That which is only seen imperfectly, or in separate letters in occasional diseases, may be read in large characters and entire words during epidemic visitations. The cause of the occasional disease is almost always feeble and isolated ; and dividing its influence with the ordinary producing conditions of age, sex, constitution, and season, it gives rise to mixed and ill-characterized products, the comparison of which is a matter of difficulty. In a word, in occasional diseases the elements of uniformity are almost equally balanced by those of diversity, and the products are as the factors. In epidemics the essential cause is one and absolute, and of sufficient energy to take the lead. In the presence of these grand manifestations the mind requires to make scarcely any effort to seize at once and to compress in its entirety that which obs. in ordinary diseases it is obliged to seek from its useful auxiliaries, analysis, comparison, and enumeration.

Mr. Alfred Haviland, in his *Climate, Weather, and Disease*, etc., 1855, reviewing the influence, or the supposed connexion between comets, meteors, volcanic eruptions, and earthquakes, upon epidemical diseases, says :

How *comets* should influence epidemics is by no means a question likely to be solved yet : the *modus operandi*, however, of *volcanic eruptions* and *earthquakes*, may be easily conceived, when we consider what really takes place during their occurrence. Vast volumes of mephitic fumes, impalpable but heavy dust, ashes, cinders, stones, and gases of all descriptions, are vomited from the craters of volcanoes in activity. These deleterious matters get hurled with prodigious force into the higher regions of the atmosphere, where the current rapidly wafts them over distant lands, and thus impregnates the air with an invisible poison, which, as the unseen hand of Providence, fulfils its fatal mission by sapping the health and destroying the life of thousands and tens of thousands. Probably *meteors* or *aerolites* were often mistaken for *comets* : their origin, however, is highly problematical, although they come under the denomination of *foreign bodies* suspended in the atmosphere, and perhaps owe their origin to the same cause that produces what are called "dry fogs," which were noticed in the remarkable year of 1782, when the influenza was more widely epidemic than it had ever been before. . . . [INFLUENZA] . . . Now I think with Dr. Prout that it is highly prob. that some such a powerful agent does pervade the air after the eruption of volcanoes ; and when we know the enormous distance that dust and ashes are propelled, and then carried in the upper currents of the air, I see no difficulty in accounting for some epidemics by supposing the air in the neighbourhood where they appear to be thus poisoned.

The 16th Rep. of Reg.-Gen. pub. 1856, contains a *Rep. on the Nomenclature and Statistical Classification of Diseases*. In Class I. is included Epidemic, Endemic, and Contagious Diseases. Dr. Farr, the author of the Rep., says :

This class includes fever, smallpox, plague, influenza, cholera, and the other diseases which have the peculiar character of suddenly attacking great numbers of people at intervals of unfavourable sanitary conditions. The diseases of this class distinguish one country from another—one year from another ; they have formed epochs in chronology ; and, as Niebuhr has shown, have influenced not only the fate of cities, such as Athens and Florence, but of empires ; they decimate armies, disable fleets ; they take the lives of criminals that justice has not condemned ; they redouble the danger of crowded hospitals ; they infest the habitations of the poor, and strike the artisan in his strength, down from comfort into helpless poverty ; they carry away the infant from the mother's breast, and the old man at the end of life ; but their direct eruptions are excessively fatal to men in the prime and vigour of age.

He adds :

Pestilence and famine have always obtained the special attention of governments ; and epidemical maladies have a special claim now to the attention of the statist : inasmuch as by prophylactic methods, of which vaccination is an example, and by hygienic arrangements, the ravages of epidemics may be greatly diminished. They are more than other diseases under public control, and may be diminished to a large extent by sanitary measures.

The Reg.-Gen. in his Quarterly return for March, 1858, referring to the then recent fatal ravages of Diphtheria, says :

Diphtheria, like Asiatic cholera, is prob. only a more intense form of an old disease ; but new intense spreading forms of disease deserve close attention : for with the increasing density of pop., the intimate connexions between Eng. and every unhealthy climate of the world, and the slow progress of sanitary improvement, we cannot consider ourselves absolutely safe from an eruption of some epidemics, which, like their predecessors, may open a new chap., not only of medical, but of national hist. ; for Niebuhr acutely remarks that *the great epochs of hist. are marked out by pestilences*.

Epidemics, like new varieties of animals, spring up under favourable circumstances. Each epidemic form has its congenial climate. The cholera epidemic is bred on the delta of the Ganges ; yellow fever on the banks of the Mississippi ; plague around the Nile in Lower Egypt ; typhus in our towns ; ague in our marshes ; diphtheria, according to the popular theory, in France—where the conditions are more favourable, on the whole, than they are in Eng.—to the diffusion of putrid effluvia over the fauces.

In our general art. on DISEASES, under date 1860 and 1861, will be found obs. bearing upon the subject of epidemics and their causes.

Dr. Stark, in the 7th Detailed Rep. of the Reg.-Gen. for Scotland, reviewing the

deaths of 1861, points out that certain facts which he there shows appear to demonstrate that "in epidemic years, the zymotic class of diseases propagate or spread not only by virtue of their unknown epidemic or endemic constitution, but also to a very large extent by means of contagion." He continues:

Indeed, these facts would seem to prove that when zymotic diseases assume the true character of epidemics, they also at the same time become capable of being propagated by contagion. Medical obs. has to a large extent confirmed the truth of the results which have been deduced from the facts above referred to; for it has often been observed that the diseases termed epidemic, of whose propagation by contagion not a trace appears for a considerable period, seem in other years to change their nature, so that they not only spread by reason of their unknown epidemic agency, whatever that may be, but also to a considerable extent by contagion.

In a paper read by Dr. Benjamin W. Richardson, M.A., M.D., before the Social Science Congress, 1861, *Facts and Suggestions on the Registration of Disease*, that writer remarks:

The study of an epidemic admits of being pursued at two different times—first, when the epidemic itself is present; second, when it is absent, from the data which it has supplied. Unless this division of labour is introduced into the work, no organized system of obs. will prove of avail. I believe, indeed, that half the want of success that has appeared in the study of epidemics has arisen from the fact, that by the majority of observers these diseases are only thought worthy of consideration at such times as they are present. Hence we see, during a serious epidemic visitation, all thoughts roused, and every eye observing; but no sooner has the visitation fled by, than, as if wearied outright by the duties of the task, all thought rests and every eye sleeps. I need not say to what an extent this mode of conducting an inquiry is hasty, fretful, and useless.

Dr. Edward Smith, M.D., in his *Health and Disease*, 1861, in treating of the "Seasonal Cycle," and its effect upon the vital powers of the human body, says:

But the most striking illustration, perhaps, is the cessation of a fatal epidemic, as the plague or cholera: for as its origin is obscure, and its progress frightful, so is its disappearance unaccounted for. The direction of inquiry has had reference to the specific material which caused the disease, and to the diminution in number of those persons who are most liable to its influence; and no doubt both of these are worthy of investigation: for it has been shown that almost contiguous localities have been variously visited by the pest (which would seem to support the idea of a local origin), and it is admitted that men differ in their powers of resisting special morbid influences. We would not wish to withdraw attention from these two sources of inquiry, but it may be inferred that there is yet a further cause, from the fact that in the same place, with the same pop., and without any general preventive measures being adopted, the epidemic pursues a defined course, and at length ceases. In this case only the latter theory can be advanced in explanation of the cessation of the epidemic; but it is manifestly too hypothetical to warrant our resting an important scientific question upon it alone.

The explanation which is required is found in that which has been already stated by us, viz. the changes of the vital powers of the body connected with season. The precise progress of the epidemic is that of the varying powers of the system. It begins as they decline, increases as they decrease, is the greatest where they are the least, decreases as they increase, and disappears when they have recovered the height from which they fell.

At present our chief difficulty is in accounting for the origin of such diseases; and the greatest labour and ingenuity have been expended to show that it is due to the introduction of special but undiscovered poisons. But we may be allowed to ask, if its presence will cause the outbreak, and it is multiplied as its victims increase, why does it not continue, and continually increase indefinitely? In the present state of our knowledge it is impossible to discuss this question with profit; but we venture to think that the idea which we have now given may be also applicable to account for the origin of the disease.

Again, in a chapter upon "The Occurrence and the Causes of Epidemics," there is the following:

The essential idea in the occurrence of an epidemic is that of a disease either of a known or unknown kind, which attacks mankind with an *unusual* prevalence, or with *unusual* virulence, so that a large mass of the people become afflicted by it, or large numbers die from it. The *unusual prevalence* and the *great mort.* are the questions which attract our attention at present, and clearly indicate the occurrence of causes of disease acting temporarily with unusual power, or a state of system which is unusually deficient in its power to resist the causes of disease—or it may be that both these conditions occur at the same time.

He then proceeds to note the occurrence of the chief epidemics of the Christian era, noting their characteristic features. These we propose to review under *PLAGUES*. At the conclusion of his historical survey, he says:

Hence, whilst some forms of temporarily fatal disease have disappeared, others have arisen, and many remain which were known to have existed before the Christian era; so that whilst mort. is lessened, we are yet exposed to the conditions of epidemic disease already mentioned, viz. the unwanted influence of external agencies, or a temporary defect of the powers of the system to prevent the occurrence of disease.

He finally proceeds to an examination of the "Causes of Epidemics," wherein his conclusions are but an expansion, most instructively executed, of views expressed by writers already quoted.

Dr. Stark, in the 8th Detailed Ann. Rep. of the Reg.-Gen. for Scotland, reviewing the causes of death in 1862, says:

The experience of the 8 years 1855 to 1862 inclusive in Scotland has shown that the years of highest mort. are not those when the proportion of deaths from the epidemic diseases is greatest. Thus, in the year of lowest mort. the deaths from the zymotic class of diseases constituted 25 p.c. of the deaths; but in 1860, the year of greatest mort., they only constituted 22 p.c.; and again in 1862, a year also of great mort., they only constituted 21 p.c. of the deaths.

In the present state of sanitary science this is a most important fact, because it shows the fallacy of the opinions urged by sanitary reformers, that improved sanitary arrangements would extinguish the epidemic class of diseases. In that belief they teach that all the deaths from the epidemic class of diseases are "preventable deaths"; and hence they argue that proper sanitary arrangements would preserve to the public all those persons who ann. die from such diseases. This has yet to be proved. Take, for instance, three of the most universal epidemics of children, viz. measles, scarlatina, and

hooping-cough. Has it ever yet been found that the children of the upper classes, in whose houses sanitary arrangements are as perfect as they can be made, are less exempt from these diseases than the children of the lowest classes, in whose houses there is utter neglect of all sanitary measures? No sanitary measures have ever arrested these diseases; no extent of sanitary precautions has warded off these diseases from the children of the rich. The neglect of sanitary arrangements only renders the people who are subjected to the filth and bad air more prone to be affected by every disease, be it an epidemic or a sporadic disease; and this is done by the tone of the system being lowered, and the general health impaired.

Several of the Life offices have from time to time pub. their mort. experience. These we have reviewed in some detail under CHOLERA, and other heads. We do not propose therefore to go over the same ground again; nor is it necessary: for Dr. Fleming, in his *Medical Statistics of Life Assu.*, 1862, has brought into view the main results of the mort. arising from epidemic and infectious diseases. He says:

The pub. statements of the 6 assu. corp. from which our deductions are taken exhibit the diseases from which an aggregate of 12,243 deaths had occurred; of this number the deaths from the above class were 1994, or 16·28 p.c., showing, on the whole, a slightly higher proportion of mort. from these diseases, in the deaths from all causes among the assured, than among the general pop., where it was 16·03.

The following interesting T. is then furnished:

Epidemic and Infectious Diseases—Mort. from, in Gen. Pop. compared with that of Ins. Life.

Ages.	No. of Deaths from Zymotic Diseases.				Per-centage of Deaths from Zymotic Diseases.									
	England: Average of 7 yrs. 1848-54.	Gotha So.	Scottish Amicable.		On Lives at risk.			On Deaths from all causes.						
					England.	Gotha So.	Scottish Amicable.	England.	Gotha So.	Scottish Amicable.	Scottish Widows Fund.	Standard.	North British	Equitable So.
15-25	6453	1	8		·188	·081	·340	22·37	25·00	47·05	...	...	...	...
25-35	5570	48	23		·203	·256	·156	19·31	32·00	20·53	...	...	...	...
35-45	4638	124	55		·221	·274	·284	17·11	25·05	26·44	...	...	...	...
45-55	4001	131	27		·263	·323	·217	15·07	20·24	15·16	...	...	...	...
55-65	3938	125	24		·389	·588	·422	13·00	17·40	17·39	...	...	...	...
65-75	3925	72	13		·677	1·246	·694	10·81	15·92	10·83	...	...	...	...
Total..	28,525	501	150		·251	·377	·266	16·03	20·31	19·40	14·30	12·54	14·35	11·94

In the case of the last four cos. the ages at death were not stated in such a manner as to be compared.

At the Brit. Asso. Meeting at Newcastle-upon-Tyne in 1863, a paper was read by Dr. G. Robinson: *On the Practicability of arresting the Development of Epidemic Diseases by the internal use of anti-zymotic agents.* The author says:

In different parts of the world, among different races, a belief has long existed that certain antiseptic substances, of which arsenic may be taken as the type, are capable of acting as antidotes, or preservative and curative agencies against atmospheric and other poisons; and in some cases that popular belief has proved to be well-founded. The experience of the multitude discovered the value of arsenic as a cure for ague long before it was recognized as such by the physicians. The arsenic fumes of certain works in Cornwall were stated by the late Dr. Paris to have stopped the ague, previously endemic there. More recently it has been stated that the arsenic-eaters of Syria are peculiarly exempt from fevers and other epidemic diseases; and in India the natives have long used arsenic as an antidote to the poison of snakes.

This paper, which is pub. in abstract only in the Trans., contains much other information of interest.

Sir Charles Hastings, M.D., in his address on *Health*, before the Social Science Congress in 1864, said:

Before quitting this subject, I may observe that the spread of epidemic fever is greatly aided by overcrowding and want of ventilation in houses. Perhaps of all causes this has most to do with incubating and diffusing those continued fevers, which are known as inflammatory or relapsing fever, typhus, enteric, and gastric fever. Concurrent experience seems to show that by diminution of the numbers in a given space, so as to obtain pure air, and by free ventilation, you stay the progress of these diseases. It is by these means especially that model lodging-houses have been instrumental in diminishing the death-rate of crowded localities; though no doubt improved drainage and water supply have acted powerfully in the same direction. A forcible illustration may be seen in the results of the improved sanitary arrangements in our prisons. In the year 1783, as I shall have further occasion to mention, a severe outbreak of fever took place in the county gaol of Worcester, while in 1863, when a fatal epidemic scarlatina raged in that city, not a single case occurred in the prison: showing conclusively that under proper hygienic conditions a barrier may be opposed to the inroads of infectious disease.

The 8th Rep. of the Medical Office of the Privy Council, relating to the year 1865, contains the following observations:

In relation to the spread of pestilential disorders, the year 1865 was of extraordinary and most painful interest. That in this year, after more than a century's interval, the herds of Eng. were revisited by the most malignant of bovine plagues—the, to them, unfamiliar murrain of the Russian

steppes—would in itself be a sad distinction of the year. But the eventfulness of 1865 was even less in that field of suffering than in relation to human epidemics. . . . First, early in April it was rumoured that a disease of the nature of plague, coming from beyond the Ural Mountains, and causing depopulation in its course, had not only reached St. Petersburg, where it was said to be causing fearful ravages, but had spread beyond the Prussian frontier; and was prevailing, though in a less destructive form, in Dantzic and various other places in North Germany. Next, in June came the importation of Asiatic cholera into Egypt, and, therefore, radiating from Alexandria, . . . the renewed influence of this terrible infection in Europe. Thirdly, there was the fact (hitherto, I believe, unparalleled in the epidemiological experience of this country), that an outbreak of *yellow fever*, fortunately not on a large scale, was occasioned to the pop. of Swansea by the arrival of an infected ship from Cuba.

These several points are all enlarged upon in this same Report.

The 25th Rep. of the Reg.-Gen. pub. 1864, contains a review of the mort. of males and females at various periods of life, over a series of years; and therein occur the following obs., showing how epidemic diseases have a direct bearing upon the mort. experience of Ins. Asso.

Generally at all ages from 5 to 65, the mort. was highest in the year of the great cholera epidemic (1849), and lowest in the years 1856, 1860, and 1861. *The mort. never falls so much below the mean mort. as it is raised above it by epidemics especially;* and while the absolute difference of the rates is naturally greatest at the advanced ages, when the rates themselves are high, the relative rise and fall is greatest in childhood after the age of 5 years and under 15, when the zymotic diseases of that age are most prevalent. Women of the age of 15 and under 45 were cut off in great numbers in the cholera years.

The following are examples in the fluctuations in the rate of mort. in the 25 years: The mean ann. mort. of men at the age of 25-35 was '975, but the mort. of men at that age in 1849 was 1'236; and in 1850 it was as low as '877 p.c. The range was '359; in the one case it was more than 26 p.c., '975, and in the other 10 p.c. below that mort. rate. The mean ann. mort. of men of 55-65 was 3'126, but in 1849 the rate was 3'653; in 1850 it was 2'979; thus the range was '674 in the 25 years.

An ins. office upon a large number of lives of 55-65 would pay at the rate of 31 pol. in 1000 during ordinary years; but it may pay on 37 or 30 deaths in years of high or low mort. The relative fluctuation is greater when small numbers are concerned.

Dr. John Edward Morgan, M.A., M.D. Oxon, read before the Social Science Congress in 1865 a paper, *The Danger of Deterioration of Race from the too rapid increase of Great Cities*, wherein, amongst much other much valuable information, he observes, regarding the regis. of disease:

On the intensity which some of the more formidable diseases assume during different epidemics, and on the localities they select as their most congenial haunts, much interesting information is accumulating in these returns—the more interesting from the little attention these questions have hitherto received. They are valuable, likewise, as enabling us to compare the sanitary shortcomings of different places. To take an example: disease returns corresponding to those of the Sanitary Asso. were collected and tabulated by the late Dr. R. D. Thompson. On comparing the two sets of obs., it has been found, that the law of diffusion which characterizes the distribution of some of the more ordinary maladies in London and Manchester differs materially. . . . Thus, while diarrhoea is invariably more general in the metropolitan parish of Marylebone, bronchitis and kindred affections of the chest predominate in the north. The impurity of water distributed by the metropolitan cos., as compared with the Manchester supply, points to this important necessary of life as the prob. cause of alimentary disturbance; while the bronchial irritation with which Manchester is affected seems referable either to more trying climatic influences, or to the more extensive contamination of the air by the products of combustion.

No less than 843,135 lives were destroyed in E. and W. in the 10 years 1857-66 by 8 epidemic diseases alone: 43,029 by smallpox, 7684 fatal cases occurring from this disease in one year; 92,374 by measles, as many as 11,349 fatal cases occurring in one year; 230,564 by scarlatina and diphtheria, as many as 36,982 occurring in a single year; 108,154 by whooping-cough, of which 15,764 occurred in 1866; 182,210 by typhus, the *maximum* annual number being reached in 1865, when 23,034 deaths were registered from this disease; 165,009 by diarrhoea, 23,531 deaths occurring in a single year; and 21,795 by cholera. It may be stated that the mort. from each of these diseases to 1,000,000 persons living in E. and W. in the first and last year of the decennial period under review—1857 and 1866 respectively—was as follows: Smallpox, 206 and 144; measles, 313 and 521; scarlatina and diphtheria, 746 and 699; whooping-cough, 531 and 751; typhus, 997 and 1005; diarrhoea, 1111 and 811; and cholera, 60 and 685. In the aggregate, exclusive of cholera, the proportional numbers were 3904 in 1857 and 3938 in 1866. In this great slaughter children under 5 years of age were the greatest sufferers, constituting no less than 66 p.c. of the total deaths by these 8 epidemic diseases.

Dr. Stark, in the 12th Detailed Rep. of Reg.-Gen. of Scotland, offers the following obs. on the course of one of the most dreaded, if not the most fatal, of epidemic diseases.

Epidemic cholera made its appearance in Scotland in 1866, but its ravages were limited, and chiefly confined to certain localities, where the water used by the people was vitiated by containing organic matter. Indeed, in almost every instance where numbers of persons were seized with cholera, it was found that they had been using water from wells where the water was rendered unfit for human use, from containing organic matter in a state of decomposition. This vitiation generally resulted from the well receiving the drainage of sewage waters, or of manure heaps, or of churchyards; and the disease rapidly declined on the wells being shut up, and the people using water free from organic impurities.

During the whole year there was a greater tendency than usual to cholera, so that even during the first 5 months of the year from 3 to 4 deaths from that disease occurred monthly. In June, however, the first perceptible rise of deaths from cholera manifested itself.

It would be well that the public and medical practitioners should recognize the fact, that cholera is the same disease everywhere, whether in India or in Britain; but that in this country it is only in distant intervals that it spreads as an epidemic. Every case should therefore be treated as if it were the forerunner of an epidemic; and if several cases are found to follow each other in the same locality,

that fact proves that the disease has assumed the epidemic form, and the water should be immediately examined.

In former epidemics of cholera in Scotland it was found that females suffered more than males. The numbers dying from that disease in 1866 were too small to furnish reliable statistics on such a subject, though over all Scotland a slightly higher proportion of females than males died of cholera. But the results from the rural and the town districts were at variance in this respect, inasmuch as a higher proportion of men died from cholera in the towns, whereas the proportion of female deaths greatly preponderated in the rural districts.

In our art. DISEASES, DEVELOPMENT OF, we have given some passages from the 30th Rep. of the Reg.-Gen., which may with advantage be consulted in reference to epidemic disease.

Dr. Guy, in *Public Health* [Part I], 1870, asks, what is meant by an *Epidemic*? and then answers the question in the following lucid and interesting manner:

Not a disease that kills a great number of people; for consumption does that, and yet is never called an epidemic. We always mean a disease that prevails extensively and yet exceptionally. If, for instance, in the winter a few persons have common colds, we call their complaint a catarrh; but if our households, most of our neighbours, or almost everybody we meet or talk about, have colds, we say they are the subjects of an epidemic catarrh, or influenza. If ague, after being long a stranger, runs through a village, as I have seen it do in Cambridgeshire, seizing one or more persons in almost every cottage, we call that too an epidemic, though it is common to speak of ague as an endemic, restricted to some district in which it attacks most of the inhabitants sooner or later, some one year, some another. Again, if one person in a village or town, or town district, has the cholera, and soon after another, and if, day by day, attacks multiply, till at length people become alarmed, they speak of this too as an epidemic. It is *epidemic* cholera. Bronchitis in very cold, or diarrhoea in very hot, weather, might also become so prevalent as to be rightly called an epidemic.

All prevalent diseases, then, are not epidemics, nor all epidemics of the same class. The prevalence must be exceptional. Some epidemics, like the influenza, and the attack of ague of which I spoke just now, are borne on the wings of the wind. They make a quick sharp onslaught, and then pass on. But others make their attack quite indifferently. First we hear of a single case; then perhaps the next week of another; then for several weeks together of 2, 3, or 4; then for a few weeks more the cases count by tens; then after another series of weeks by hundreds, and after another by thousands; then the maximum is reached. And now the disease declines by similar easy stages, the downward progress being sometimes slower, sometimes quicker, than the upward. This may be going on for the better part of a year, as was the case with the plague of the 17th century and the cholera of our own times.

An *epidemic*, then, being a disease exceptionally prevalent, whether mild or severe, our own experience in times past teaches us to recognize at least three distinct varieties of it—the *exotic*, the *indigenous*, and the *naturalized*. To the exotic variety belong such diseases as plague and cholera; to the indigenous, such as ague and scurvy; to the naturalized, such as smallpox and scarlet fever. To these we may add, as sometimes taking an epidemic character, bronchitis in severe winters, and English cholera in hot summers. It is (he adds) equally obvious that there are two varieties of epidemics, very distinct the one from the other—the *non-contagious*, that do not, and the *contagious*, or *infectious*, that do spread from person to person. Ague, scurvy, and influenza are of the first order; plague, smallpox, and scarlet fever of the second.

Prof. Tyndall, in a lecture before the Royal So. in Jan. 1870, offered the following obs.:

It was some time ago the current belief that epidemic diseases generally were propagated by a kind of malaria, which consisted of organic matter in a state of *motor-decay*; that when such matter was taken into the body, through the lungs or skin, it had the power of spreading there the destroying process which had attacked itself. Such a spreading power was visibly exerted in the case of yeast. A little leaven was seen to leaven the whole lump, a mere speck of matter in this supposed state of decomposition being apparently competent to propagate indefinitely its own decay. Why should not a bit of rotten malaria work in a similar manner within the human frame? In 1836 a very wonderful reply was given to this question. In that year Cagniard de la Tour discovered the yeast plant, a living organism, which when placed in a proper medium feeds, grows, and reproduces itself, and in this way carries on the process which we name fermentation. Fermentation was thus proved to be a product of life instead of a process of decay.

While thus discarding the Fermentation theory, he gives in his adhesion to the Germ theory, as follows:

The notion was expressed by Kircher, and favoured by Linnæus, that epidemic diseases are due to germs which float in the atmosphere, enter the body, and produce disturbance by the development within the body of parasitic life. While it was still struggling against great odds, this theory found an expounder and defender in the President of this institution. At a time when most of his medical brethren considered it a wild dream, Sir Henry Holland contended that some form of the germ theory was probably true. The strength of this theory consists in the perfect parallelism of the phenomena of contagious disease with those of life. As a planted acorn gives birth to an oak competent to produce a whole crop of acorns, each gifted with the power of reproducing its parent tree; and as thus from a single seedling a whole forest may spring, so these epidemic diseases literally plant their seeds, grow, and shake abroad new germs, which, meeting in the human body their proper food and temperature, finally take possession of whole populations. Thus, Asiatic cholera, beginning in a small way in the Delta of the Ganges, contrived in 17 years to spread itself over nearly the whole habitable world. The development from an infinitesimal speck of the virus of smallpox of a crop of pustules, each charged with the original poison, is another illustration. The reappearance of the scourge, as in the case of the Dreadnought at Greenwich, reported on so ably by Dr. Budd and Mr. Husk, receives a satisfactory explanation from the theory which ascribes it to the lingering of germs about the infected place.

Prof. Huxtable, in his address to the British Asso. at Liverpool in 1870, after showing the existence of germs of life in the air, as proved by various discoverers up to Pasteur, Quatrefages, and Professor Tyndall, pointed out that the first of these devised means of extirpating a silkworm disease, consequent on the presence of such germs of life, whereby some millions of money will be saved to the French growers. Thence he proceeded to the subject of the loss of human life by epidemical diseases, also caused in a similar way, and said:

How can we over-estimate the value of that knowledge of the nature of contagious diseases, and consequently of the means of checking them, the dawn of which has assuredly commenced? Looking

back over only 10 years it is possible to select 3—1863, 1864, 1869—in which the total number of deaths from scarlet fever alone amounted to 90,000. That is the return of killed: the maimed and disabled being left out of sight. The facts which I have placed before you must leave the most sanguine without a doubt that the nature and causes of this scourge will one day be as well understood as those of *pebrine* [the silkworm disease] are now, and that the long-suffered massacre of our innocents will come to an end. And thus mankind will have one more admonition that "the people perish for lack of knowledge," and that the alleviation of the miseries and the promotion of the welfare of men must be sought by those who will not lose their pains in that diligent, patient, loving study of all the multitudinous aspects of nature, the results of which constitute exact knowledge or science.

Mr. B. G. Jenkins, "of the Inner Temple," in a paper read before the Historical Soc. in 1872, and stated to be founded on a communication to the Russian Imperial Academy of Sciences, maintains that Epidemic Cholera is *intimately connected with auroral and other disturbances taking place on the sun*. This connexion he seeks to estab. by comparisons between the prevalence of the disturbances and the disease. Eleven and a half years complete the cycle of solar spots, and the author concludes that a cholera cycle is equal to one and a half of these periods. According to this reckoning, 1866 was the maximum cholera year for the world; and 1883 will be the next maximum. He considers that the disease originates not in India alone, but in 7 tropical districts, equidistant from each other—that in India being the most important. The others are in Eastern China, Arabia, Western Africa, between the West Indies and Florida, the Sandwich Islands, and West and Lower California. Seven atmospheric streams starting from these localities, and pursuing a north-western course, if assumed, would cover the heretofore observed progress of the disease, and explain its sudden appearance on board of vessels on entering the fatal limits.

Those who are familiar with the ingenious theories set on foot by the old physicians and necromancers, of some two or three centuries back, will find some points of striking resemblance in the preceding. We omitted to mention this theory in our art. on CHOLERA. [DISEASES, INFLUENCE OF SEASON ON.]

In a paper on *The Prevention of Disease*, read before the Social Science Congress in 1872 by Mr. T. Baker, a well-known writer on the laws of public health, there occurs the following passage:

Seaports will generally be first affected by epidemics, because the added condition of superfluous moisture with filth is present, ready to affect the unacclimatized stranger, almost invariably the first to suffer—thus furnishing constant and convincing evidence to those who resolutely shut their eyes to any conditions unconnected with the personal transmission of disease. At a seaport ships are always arriving, themselves not the most sanitary of dwellings, in which the sailor has been well prepared to fall under the newly-added poison of the filthy, on-the-eye-of-epidemic-stricken town.

In 1872 Dr. John Parkin pub. (part 1): *Epidemiology; or the Remote Cause of Epidemical Disease in the Animal and in the Vegetable Creation*.

A useful little publication by Dr. Southwood Smith, on *Epidemics, Quarantine, and Contagion*, was pub. some little time since.

More recently Dr. Hamilton Howe, M.D., has pub., *A Theoretical Inquiry into the Physical Cause of Epidemic Diseases; accompanied with T.* [CHOLERA.] [COMETS.] [DISEASES.] [EARTHQUAKES.] [FEVER.] [INFLUENZA.] [PESTILENCE.] [PLAGUE.] [ZYMOTIC DISEASES.]

EPIDEMIOLOGICAL So.—Founded in Lond. in 1850. Its scope and objects have been explained under DISEASES, REGIS. OF.

EPIDEMIOLOGY.—The doctrine of epidemics. In 1873 there was pub. by Dr. John Parkin, M.D., *Epidemiology; or, the Remote Cause of Epidemic Diseases in the Animal and in the Vegetable Creation* (part 1). Contents:—1. The Doctrine of Contagion. 2. Modern Theories. 3. The Propagation of Cholera. 4. Epizootics.

EPIDERMIC METHOD.—The application of medicinal substances to the skin, such as baths and lotions.

EPIDERMIS.—The external layer of the skin, lying upon the *derma*, or true skin. It is also called *cuticle*, to distinguish it from *cutis*, or true skin.

EPILEPSY (from the Greek, *a seizure*).—This disease comes on by fits, attended by convulsive stupor and frothing at the mouth. After lasting a certain time, it goes off, generally leaving a degree of lassitude and drowsiness. True epilepsy—there are varieties occasioned by derangement of the system, and by external injuries—is always indicative of something essentially wrong in the nervous system; and where it arises from hereditary disposition, or comes on about the age of puberty, where the fits are frequent and cannot be referred to any apparent cause, an unfavourable opinion must be formed respecting its termination. It is the *falling sickness* of the early B. of Mort.; and prob. the *morbus comitialis* of the ancient Romans.

Dr. Fleming, in his *Medical Statistics of Life Assu.*, 1862, says regarding Epilepsy:

For the reasons already stated, diseases of this class may be expected to furnish a much greater proportion of the mort. of assu. sos. than of the general pop.; and it is not prob. that medical science will enable us to do much more than at present in detecting those most likely to be attacked by them. Men, in whom no experience could have predicted such an event, often become the subjects of brain and nervous diseases, induced more by moral than physical causes.

Mr. John Mann, M.R.C.S., in his *Medical Statistics of Life Assu.*, 1865, lays it down as highly desirable, when epilepsy "in any of its forms" has occurred to a proposer, to ascertain with precision (1) its degree of intensity; (2) its frequency; (3) its influence on

the mind ; and (4) its relations to the family hist. He then offers the following valuable obs. on the subject generally :

Epilepsy in any of its gravest forms, or indeed in any form which has been attended with prolonged unconsciousness, more especially if to unconsciousness should have been added convulsions, is, in every instance, a disease which may be expected to shorten life.

The *degree of risk* is to be judged of very much by the frequency of the attacks. I remember an instance of an epileptic who attained to 80 years of age, who was at one time a Member of the House of Commons, and even in his old age a county magistrate ; but in him the attacks occurred not more than once in 12 months. So that if reliable evidence can be obtained that the shortest intervals between the attacks have attained the length of 6, 12, or 18 months ; and that perfect health of body and mind is rapidly regained after each attack, and enjoyed during the interval ; it is possible that an epileptic so privileged may reach the average duration of life.

But it must be borne in mind that often the evidence which is obtained from a patient subject to epilepsy is not reliable. The memory of epileptics is generally treacherous. Then they are very desirous of producing a belief, both in their own minds, and in the minds of others, that the attacks they have experienced have been very few. Another important consideration is, that many attacks, sometimes fatal ones, occur during sleep. Of the attacks that occur in the night the patient has no recollection, so that if he should happen to have no bed-fellow, the attack may be utterly unknown.

When epilepsy has produced such effects on the brain as lead to the permanent weakness or infirmity of the mental powers, it would not be safe to accept the proposal of any one of this class, on any scale of increased prem.

He further points out that epileptics are very apt to be capricious, eccentric, and sometimes given to intemperance. On this latter point he remarks (p. 25) :

In many epileptics has been observed the same unhappy disposition to occasional fits of intemperance as is observable in those cases of insanity which have been classed under the head of *vino-mania*, or *wine-madness*. The cerebral disease thus predisposes to an indulgence which again re-acts upon the disease ; fits of intemperance being the immediate excitants of new attacks of epilepsy or insanity, or both.

Regarding family hist. he says :

If, on careful inquiry into the family hist., it appears that one or more members have suffered from epilepsy, the constitutional and hereditary character of any case of the disease so circumstanced becomes more manifest. But in the study of family hist. it is necessary to look not only for epilepsy, but for those correlative diseases which sometimes take its place, such as diseased brain, insanity, and intemperance.

Finally :

It must also be remembered that cases of the milder class of this disease may by accidental circumstances, involving great anxiety, care, vexation, or irritation, be converted into those of a severer order.

From these and other causes, the duration of the life of an epileptic is always uncertain—because, from circumstances beyond all human foresight, a case mild in character, and with long intervals of health, may be changed into one of an opposite description, so as to become not only severe, but fatal.

The late Dr. Thos. Davies, of the London Hospital, held the opinion that sooner or later every case of idiopathic epilepsy terminated fatally ; except indeed where life was cut short by the intervention of some other fatal disease.

EPILEPSY, DEATHS FROM (CLASS, LOCAL ; Order, *Diseases of Nervous System*).—The deaths from this cause in Eng. show a slight tendency to decrease. In 10 consecutive years they were as follows :—1858, 2359 ; 1859, 2219 ; 1860, 2454 ; 1861, 2464 ; 1862, 2443 ; 1863, 2574 ; 1864, 2406 ; 1865, 2468 ; 1866, 2468 ; 1867, 2312 ; showing variations thus : 1858, deaths 122 to each million of the pop. living ; 1863, 127 ; 1865, 119 ; 1867, 109. The deaths over a period of 15 years ending 1864 averaged 115 p. million.

The deaths in 1867 were : males 1201 ; females 1111 ; spread pretty equally through all the ages of life.

The *Scottish Widows Fund* in 37 years, 1815 to 1852, lost 5 insurers from epilepsy : 3 between 40 and 50 ; 1 between 50 and 60 ; and 1 between 70 and 80. In the 7 years 1853 to 1859 the Co. lost 2 others, each between 50 and 60.

The *Standard* lost 3 lives from this cause between 1845 and 1850 ; and 3 lives between 1850 and 1855.

The *North British* in 37 years, 1823 to 1860, sustained 16 deaths from epilepsy. The average duration of life after ins. was 9 years 11 months ; the average expect. 29⁷/₇₃ ; the per-centage on total mort. 1¹/₂₂.

EPISTAXIS.—Bleeding at the nose. When it occurs frequently in advanced life, and is independent of nasal disease, it is apt to indicate fullness of the vessels of the head. It is a dangerous omen in disorders of great debility, and more especially in putrid fever.

EPIZOA.—Parasitic animals which live at the expense of other animals. [PARASITES.]

EPIZOOTIC DISEASES.—When diseases prevail among inferior animals, they are said, to be *epizootic*, corresponding to *epidemics* among men.

From the earliest period to the present time, in the writings of Moses and Homer, as well as in modern records, we find notices of diseases of the lower animals—of plagues not only affecting man, but beast. These diseases of cattle have not been peculiar to any latitude ; neither have they been confined to domesticated animals. Like epidemics in the human subject, they seem to be regulated by certain laws. Sometimes they appear alone, but generally they form a portion of those great “pestilential constitutions,” which spread over a series of years, and extend not only through all animal, but also over vegetable life. In Ireland epizootics are recorded in the very earliest histories. “From the pre-Christian period down to the present time” no century has elapsed without frequent invasions of cattle diseases. In early and uncivilized times, before men acquired a knowledge of the preservation of fodder, and when cattle remained unhoused during the

winter, great mort. must have ensued upon the occurrence of severe snow-storms or frost ; and great liability to certain kinds of disease must have been engendered.

These considerations were ably expressed by the Commissioners of the Census of Ireland in 1851, who add :

There has been scarcely a domestic or a wild animal in Ireland that has not in its turn suffered from pestilence—even bees did not escape; and the coincidence of these various epizootics with distinct "epidemic constitutions" and pestilence in man—sometimes preceding, and at others following in the track of some great plague—are subjects well worthy the consideration of the scientific. It is only, however, when the records of other countries have been searched with the same diligence and with a like object, and tabulated after some such arranged plan as that which we have adopted in this rep., that the waves of pestilence which have left their track upon the sands of time will enable us to speculate upon the laws by which they undoubtedly seem to be governed. . . .

Comparative pathology has not received from scientific men that amount of attention which it requires; yet in the rep. upon the epidemic fever in Ireland embodied in the *Dublin Quarterly Journal of Medical Science* . . . the medical profession in Ireland afforded an amount of information respecting cattle diseases, which had not been collected on any previous occasion. Inquiries of this nature must, in the words of an eminent writer [Cherny, in *The Veterinarian*], be regarded as "a political question involving the well-being of a large portion of the community; not merely affecting those who rear, and endeavour to derive profit from rearing animals; but also affecting the community, as regards the supply of food; for if a disease of this kind cannot be arrested, not only will there be loss to the individual who is engaged in the rearing of animals, but to the public, who will in consequence have injurious food placed before them. . . ."

In the great pestilence that devastated Ireland in 1224, and which was one of the earliest and best-marked outbreaks of *Teasca*, or typhus fever, which we read of, the annals have recorded an epidemic associated therewith as—the "dreadful distemper, *galar aidbhis*, among the cattle, after they had eaten of the grass" upon which a certain shower had fallen, and which produced various distempers, especially fever and dysentery, in the people who partook of their milk and flesh.

Coming down to present times, they say :

One of the most fatal, wide-spread, and longest-lasting epizootics which hist. has ever recorded is that which characterized the epidemic constitution of the present century, and which is generally known by the name of pleuro-pneumonia. . . . The disease was introduced in Europe about 1835, but did not reach this island for some years afterwards. It was preceded by an eruptive disease. It has been decidedly both contagious and epidemic; and it principally affected the thin-skinned and comparatively delicate modern improved breeds, especially Devons. Certain damp low pastures seemed more fatal than high exposed uplands; the deleterious atmosphere of over-crowded sheds also proved decidedly pernicious. The purely native stock appeared to have, in many places, enjoyed a comparative immunity from the disease. Sheep as well as horned cattle suffered from the epidemic, which is now [1855] only showing any marked decrease either in virulence or extent. *It is well known that great numbers of cattle labouring under the fever of pleuro-pneumonia were slaughtered, and the meat sold in the metropolis and large towns—a practice likely to recur under similar circumstances until a more effective system of medical police be estab.*

The T. which accompanies these obs. is one of great interest, but we cannot present it, on the ground of space alone. [CATTLE, DISEASES OF.]

EQUAL DECREMENTS IN EACH YEAR OF LIFE.—A technical assumption applied to the calculation of life annu. In a paper in the *Assu. Mag.* [vol. xv. p. 126], 1869, *On the Value of Rev. Annu. payable half-yearly, quarterly, etc., according to the conditions which prevail in practice*, by Mr. Sprague, the effect of this assumption is considered in a purely scientific manner. In the same pub. [vol. xvii. p. 171], 1872, there is a paper by Mr. Woolhouse: *Reduction of Formulæ for Annu. and Assu. investigated by Mr. Sprague, on the common hypothesis of Equal Decrements in each year of life*. This also is purely scientific. [HYPOTHETICAL MORT. T.]

EQUALIZED PREMIUMS.—In life ins. the ann. prems. payable in respect of whole life or term pol. are usually "equalized" over the entire term of the ins.—otherwise they would increase with each year of age. An equalized prem. is therefore the opposite of a natural or progressive prem. [LIFE INS. PREMS.] [PROGRESSIVE PREMS.] [UNEQUALIZED PREMS.]

EQUATION (from the Latin *æqualis*, a making equal).—In mathematics the name given to the symbolic expression of the equality of two quantities or functions. The term has many applications in the sciences.

EQUATION OF LIFE.—A technical term, signifying the process of ascertaining the period of years at which there is an *equal prob. of living or dying*. Thus if 1000 persons born at the same time are reduced to one-half at age 45, it is an equal chance whether a person will attain that age. Different Mort. T. give different results in this particular. Thus under the *Northampton T.* the equated age is but 8 years; while under the *Carlisle T.* it is 41. Under the *English Life T. No. 1*, it is 44 for males, and 46 for females; under *English Life T. No. 3*, it is 45 for males, and 46 for females. Under *Experience Life T. No. 1*, it is 63 (males and females combined); and under *Experience T. No. 3*, it is 65 years for males and 64 for females. Other Mort. T. show variations more or less considerable. The Equation of Life may be shown at any age by the same process; viz. by ascertaining when half the survivors of that age will have passed away.

The Equation of Life is not the same as the "Expectation of Life," for reasons which we shall explain under that head. Mr. Neison, in his *Contributions to V. Statis.*, 1857, says, "The Equation of Life . . . appears to be the best mode to determine the comparative value of life in different classes or different districts within the same period of years, as the expression is affected by the mort. within those ages only." But writers generally on these subjects have not adopted that view. [EXPECTATION OF LIFE] [FORCE OF MORT.]

EQUATORIAL CURRENT.—An important part of the stream currents of the Atlantic, first distinctly traceable off the coast of Africa, a little south of the equator, whence it continues to run nearly on a line for a distance of 1000 miles, as far as 22° west longitude. It then sends off a branch to the north-west, and declining southwards, runs for some distance parallel to the coast of South America, until it is lost sight of near the mouth of the Amazons. Including both branches, it has a course of 4000 miles. It may be associated with the Gulf Stream. [GULF STREAM.]

EQUINA (from *equinus*, belonging to the horse).—Glanders—a contagious disease, characterized by inflammation of the mucus membrane, and inflammatory tumours and pustules in different parts of the body. [FARCINOMA.] *Farcy* is distinguished from glanders by the absence of the peculiar discharge from the nostrils. [HORSES, INS. OF.]

EQUINOCTIAL GALES.—Storms which are observed to prevail about the time of the sun's crossing the equator, at which time there is equal day and night throughout the world. These storms are looked forward to with well-founded terror by underwriters.

EQUIPAGE.—In marine affairs this term signifies the crew of a ship, together with all a ship's furniture, masts, sails, ammunition, etc.

EQUITABLE DEPOSIT.—See EQUITABLE MORTGAGE.

EQUITABLE DEPOSIT INS. CO.—A project under this title was set on foot in 1851, but did not go forward.

EQUITABLE FIRE INS. CO.—Founded in 1850, with an authorized cap. of £500,000, in 25,000 shares of £20. The amount actually subs. was £190,000. The Co. was worked mainly in conjunction with the *International Life*, having the benefit of its agency connexions.

The promoter of the Co. was Mr. T. Lamie Murray, who was (subject to a resolution of the shareholders) to receive 2½ p.c. on the subs. cap. of the Co.; while under another clause of the deed he was to have 5 p.c. of the profits for the first 28 years certain, and for as many more years as he might happen to live. The preliminary expenses were guaranteed not to exceed £12,500! In the first bal. sheet there was debited as paid to Mr. Murray £5270 7s. 1d.

The Co. acquired a considerable bus. in Canada, Nova Scotia, New Brunswick, etc. The fire in Montreal in 1852 landed the Co. in a loss of £18,000, and crippled its resources considerably. It continued to carry on bus. until 1860, when its connexions were trans. to the *Unity Fire*; and the Co. itself passed into voluntary liq.

EQUITABLE FIRE INS. CO. (LIMITED).—Founded in Manchester in 1873, with a cap. of £500,000, in 100,000 shares of £5—first issue one-half. The provisional committee, whose names appeared on the orig. prosp., represented some of the largest mercantile houses in Manchester and the surrounding districts. The prosp. said:

The *Equitable Fire Ins. Co. Lim.* is being estab. to carry on the bus. on the principles of independence and equity.

The recent extraordinary increase in the rates for the ins. of cotton and woollen mills—together with the fact that the combined offices neither encourage careflessness in management, nor seek in any way to lessen the risk of fire—has made it apparent that the members of the cotton and woollen trades may, with great advantage to themselves, take the ins. of their property more into their own hands than they have hitherto done, and one of the principal objects of this Co. is to transact such bus.

A special feature in such bus., and one indicating that it may be conducted with safety and profit, is, that while cotton and woollen mills may be numbered by the thousand, nearly every mill forms a separate and distinct risk, and thus, in the event of fire, endangers no other property. The basis of average cannot therefore be upset by such conflagrations as have occurred at Chicago and Boston.

That the Co. may thoroughly represent and deserve the entire confidence of its constituents, it is proposed that in each of the more important towns and localities in which bus. may be transacted, as far as practicable, the fostering and supervision of its bus. shall be entrusted to a local board of directors; and that the general control of the Co. shall be vested in a central board comprising representatives from each of the local boards.

In fixing rates every consideration will be paid to the individual merits of each risk, including construction, management, materials worked, and fire extinguishing apparatus. Every care will also be taken, and the best local information made use of, to prevent the acceptance of undesirable risks.

The Directors of the Co. will also be deeply interested personally in dealing satisfactorily with the question of local rating, and their knowledge of the trade and requirements of the district will be much more ample and reliable than that of any committee sitting in Lond. can possibly be.

Special attention will also be paid to the equitable rating of mercantile risks, such as warehouses and their contents, in Manchester and other centres of commerce. A general bus. will also be cultivated.

No unnecessary expense will be incurred in the conduct of the bus.; when it is possible, bus. will be transacted direct with the insured.

An estimate is then made of the prospects of bus. in the district. The prem. income on 1500 mills ins. on an average for £4000 would prob. produce £50,000, and with losses at 70 p.c. there would still, it was estimated, be a div. of 20 p.c. for the shareholders.

The rep. issued for the 7 months ending 31 Jan. 1874, showed that 44,273 shares had been issued, representing a cap. of £221,365, upon which £44,146 had been paid.

The fire prem. had amounted to £7914; the sums ins. being £1,304,678. The losses paid and provided for had been £4575. The formation expenses, £536, were written off, and the balance, £1302, was carried forward.

Mr. D. R. Paterson was the Sec. *pro tem.*

EQUITABLE GUARANTEE AND LIFE ASSU. SO.—Prov. regis. 15 Dec. 1848, but never completely regis.

EQUITABLE GUARANTEE LIFE.—A Co. under this title was projected in 1849 by Mr. John Maxwell, advertising agent, but it did not go beyond the first stages of regis. Another co. with an almost precisely similar title was projected in the same year.

EQUITABLE HAIL INS. CO.—Founded at Norwich in 1865, with an authorized cap. of £200,000; the first regis. promoter being Mr. Frederick Brown. The Co. ceased to carry on bus. in 1867.

EQUITABLE LIEN.—See LIEN; also EQUITABLE MORTGAGE.

EQUITABLE LIFE ASSU. SO. (of the U.S.) was chartered on the 2nd May, 1859, under the authority of the Act of the N.Y. Legislature, 1853. The founder of the So. was Mr. H. B. Hyde, who had received his ins. training in the *Mutual* of N.Y. The bus. of the Co. was very steady for the first few years, after which it commenced to make rapid strides. The following T. may be said to embody the hist. of the So. Nothing so remarkable has been accomplished in the same period.

Year ending Dec. 31st.	No. of Policies issued.	New Assurances in the year.	Cash Receipts.		Total Income.	Assets.
			Total Premiums.	Interest.		
1859,		£	£	£	£	£
5 mos.	277	235,100	4,700	...	4,700	23,400
1860	612	380,700	13,100	1,100	15,200	32,500
1861	678	364,400	19,000	1,600	20,600	42,100
1862	1,233	570,700	33,800	2,400	36,200	64,800
1863	1,623	919,600	58,100	3,500	61,600	116,900
1864	2,873	1,761,000	115,200	7,400	122,600	205,000
1865	3,425	2,749,700	180,100	14,200	194,300	317,300
1866	7,293	6,053,500	340,800	20,600	361,400	615,500
1867	10,527	9,090,700	612,500	36,900	649,400	1,025,000
1868	11,986	10,378,300	895,800	72,200	968,000	1,544,200
1869	13,211	10,204,200	1,153,800	99,800	1,253,600	2,102,100
1870	10,063	8,059,100	1,265,500	136,300	1,401,800	2,647,200
1871	10,083	8,360,800	1,358,100	164,300	1,522,400	3,234,900
1872	12,491	10,382,200	1,485,400	198,600	1,684,000	3,939,000
1873	13,403	10,690,515	1,708,338	251,697	1,967,788	4,575,683

It is needless, after a perusal of these figures, to say that the So. embraces every feature of liberality known in connexion with Life Ins.

The So. commenced bus. in the U.K. in 1869; Mr. A. Munckittrick being the Man. for Gt. Brit. It opened a Lond. branch in 1871, and is understood to have trans. a considerable bus.

The annexed is the scale of premiums for whole-life participating policies:

The surplus is distributed ann. on the "Contribution plan."

In 1873 there was pub. in Lond.: *Equitable Life Assu. So. of the U.S., a Statement and Opinions thereon, by leading Actuaries in Lond.* This document is so exhaustive in favour of the So. that there really remains, after a perusal of it, nothing more to be said.

The total ins. existing 31 Dec. 1873, were £36,856,426.

Age.	Ann. Prems.		
	£	s.	d.
25	1	19	9
30	2	5	5
35	2	12	9
40	3	2	7
45	3	15	11
50	4	14	4
55	5	19	10
60	7	15	3

EQUITABLE MORTGAGE.—These are of several descriptions, and require to be distinguished from mere liens, viz.—1. Where a debtor deposits the title-deeds of his estate with his creditor, or some person on his behalf, without any written agreement. The deposit itself is deemed evidence of an executed agreement or contract for a mortgage of such estate. 2. Where there is a written agreement only to make a mortgage, which creates an equitable lien on the land. 3. Where it is an equity of redemption, which is merely a right to file a bill or claim in equity to redeem the estate. 4. Where the subject of a mortgage is trust property, which security is effected either by a formal deed or a written memorandum, notice being given to the trustees in order to preserve the priority. The first, that is equitable mortgage by deposit of deeds, is very extensively resorted to in practice, although it appears to be a clear evasion of the STATUTE OF FRAUDS. The title-deeds may be deposited at different times, if it be in pursuance of the orig. contract. It has been thought that the deposit of the conveyance to the mortgagor will alone constitute an equitable mortgage; certainly the deposit of a considerable portion of the deeds will do so.—*Lacon v. Allen*, 1856.

A depositor of title-deeds is entitled to priority over a subsequent legal mortgagee or purchaser, who lent or paid his money with notice of deposit, but not in the absence of such notice: for then the equities of the parties being equal, the law must prevail.

Where an equitable mortgagor is a trader liable to bankruptcy, the deposit should be accompanied by a written memorandum: because then, in case of bankruptcy, the mort-

gagagee will be entitled to the costs of his petition to the Court for the sale of the property. Without a written memorandum, he will not.

A mere depositary of a lease cannot be compelled to take a legal assignment so as to enable the lessor to sue him at law on the covenants in the lease; nor is he liable to them until he has made himself legal assignee.

Such dealings in the hands of inexperienced persons are always attended with some danger.

EQUITABLE RELIEF.—When a pol. is void by reason of any fraudulent misrepresentation, the Co. is entitled to file a bill to have it delivered up to be cancelled; and this is a right possessed in common with every person from whom any deed or other instrument has been obtained by fraud or misrepresentation. And when a pol. has become void, by reason of the breach of any condition, and an action has been brought upon it, the Co. is entitled to the like relief. At the same time it has been considered that, in the latter case, since the pol. would be void at law upon the face of it, equity until the action were brought would have no jurisdiction, although it could entertain a bill of discovery in aid of a defence to an action—a relief, however, it is presumed, unnecessary in the present state of the law. [See *Gresham Life, v. Below*, Rolls Court, July, 1874.]

Where equity relieves in ordering an instrument to be cancelled, the general rule is that the party in whose favour the decree is made shall do equity by returning the consideration; but this would not override an express stipulation for the forfeiture of the prem. on avoidance of the pol.

When the pol. has been void *ab initio*, or in any case where a prem. has been paid, but the risk has not been run, whether this has been owing to the fault, pleasure, or will of the assured, or to any other cause, the prem. shall be returned by the insurers. But if the risk has once commenced, there shall be no apportionment or return of the prem. afterwards. When, however, the contract is divisible, that portion of the prem. which may have been paid for the risk not run shall be returned: as when, in add. to the renewal prem., a further prem. is paid for a license to proceed to any foreign place. Should the insured remain in Eng., and never incur the risk, the prem. must be returned. An exception arises where there has been actual fraud on the part of the insured or his agent.

—Bunyon, *Law of Life Assu.*

In the case of *Jones v. Dana*, before the N.Y. Courts in 1857, it was held, that if the parties have been induced to enter into contracts of ins. upon a fraudulent representation by the agents and officers of a co. in regard to its cap. or pecuniary resources and ability, or any other matter which rightfully influenced them in the negotiation, they may be relieved against their contracts [24 Barb. N.Y. 395].

In the case of sale and purchase of rev. interests, equitable relief has often been sought for and obtained; as also in regard to usurious contracts. [COVENANT TO INS.] [ENFORCEMENT OF CONTRACT.] [FRAUD.] [REV. INTERESTS.] [UNCONSCIONABLE BARGAINS.]

EQUITABLE REVERSIONARY INTEREST SO.—Founded in 1835, with an authorized cap. of £300,000, in 3000 shares of £100, on which £5 was to be paid down, and the remainder as opportunities for investment arose. The orig. prosp. said:

The Co. will be the purchasers of no property but of the best description, nor will they advance any money by way of annuity but upon undoubted security; and they will so conduct their bus. as to relieve themselves from the possibility of being charged with taking advantage of the necessities of those who may transact bus. with them. There is no necessity for any over-reaching or unfair conduct in order to realize a fair profit from such a mode of employing cap. The legitimate profits are known to men of bus. to be very considerable.

The operations of the Co. have been attended with success.

Mr. John Clayton was formerly Sec. and Mr. Peter Hardy Act. Messrs. F. S. and C. H. Clayton are now Secs. and Mr. F. Hendriks Act.

EQUITABLE SO.: A SURE PROVISION FOR POSTERITY FOUNDED UPON THE EXCHEQUER.—A scheme under this title was set on foot in 1712. It partook of the nature of a Tontine Ins. Lottery. The following is prob. the same project, under a slightly varied title.

EQUITABLE SO. FOR THE BENEFIT OF POSTERITY, “kept at the Blue Railes, the 2nd door on the left hand in Bolt Court in Fleet St., Lond.”—From the prospectus, which is entitled, “A Sure Provision for Posterity; founded upon the Exchequer by the *Equitable So.*, who propose,” etc., we take the following details of the scheme:

1. That subs. be taken on 2000 lives, and no more, of any age or sex, which may be on their own lives, for the benefit of their children, relatives, executors, administrators, or assigns, or on the lives of any other persons for the benefit of themselves, without their knowledge. And tho’ no more than 2000 lives are propos’d to be subscrib’d on; yet less may, because some persons may subs. several £10 on one life.

2. That every person subs. must name the life they subs. on, upon which they shall have a pol. to entitle them to a dividend, in the form hereafter mentioned, mark’d A, paying for the same 5s., besides stamps, as also 2s. 6d. per quarter on every quarter day, or within 10 days after (upon forfeiture of all they have before paid) from the date of the pol. till they come to receive their dividend, which entrance and quarterage are to go towards the charge of rent, council, policies, printed lists, certificates, clerks’ wages, advertisements, affidavits, bonds, trustees, etc.

3. That within 2 months after subs. the person that subs. is to pay £10 at 4 several payments, viz. 50s. the first payment a fortnight after subs., and so on every fortnight 50s. till the whole dividend be paid, or else forfeit whatever they have before paid; which £10 so paid is all the charge he or she is to be at in the whole, excepting as above specified.

4. That if 2000 lives be subs. on, the principal money will amount to £20,000, *which money shall be laid out so fast as it comes in, in blank and benefit pay lottery tickets*, which, at something under 9 years and a half's purchase (the price they are now to be bought at), will buy about £2200 p.a. for the residue of 32 years, reckoning 31 years to come; and if they should be to be bought still more under 9½ years' purchase, the £20,000 will buy more than £2200 p.a.

5. That the £2200 p.a., or what more the £20,000 paid in will purchase, shall be divided quarterly on every quarter day, or within 21 days after, to and amongst such subs., share and share alike, as shall claim on the death of the persons they have subs. on, and have died between one quarter day and another, to commence the next quarter day six months after their subs., but in case the subs. be not full, to divide in proportion to what the money shall purchase.

6. Every person whose life is subs. on must live 6 months after the date of their pol., otherwise the subs. shall be entitled to no benefit from this So.; but then, at the death of such person whose life is subs. on within that 6 months, they shall have the liberty of entering another life in their room, paying for pol. and stamps as at first.

7. Upon the death of the lives subs. on after they have lived 6 months, no others are to be admitted in their room, so that every year that they die out, the div. will be the greater to those that live long. And yet such subs. will pay no more than they, excepting quarteridge-money for so much longer time as they live, which is but a trifle; so that as the number of the lives subs. on decreases, the div. will consequently encrease, because it is reasonable to believe fewer will die out of the smaller number than out of the greater number.

8. If any subs. shall at any time be desirous to sell, set over, or assign, his or her policy to any other person, such subs. so selling or assigning must, to prevent all disputes that may arise, come with the purchaser to the office, and have the policy changed for one in the name the purchaser shall desire, paying for the same 5s., besides stamps; and also every subs. must pay the same upon their changing one life for another.

9. As the £2200 p.a. so to be purchased ceases at the end of 31 years, it is hereby declared and determined that the last year's payment shall, at the end of that year, be divided both to the claimants of that year upon the death of the lives subs. on, and the living subs., share and share alike, so that it is impossible any should be losers, living or dying, but to the contrary every subs. will be a gainer, either more or less.

10. For the security of the money paid in before the pay lottery tickets are bought with it, it is propos'd and determined, that as soon as 20 subs. have paid in their whole subs. money (which they are obliged by the 3rd art. to pay in 2 months after subs.), 4 trustees shall be chosen from amongst them, who with the proposer shall make the following affidavits mark'd B and C, and each of them keep a key of an iron chest to be provided with 5 different locks and keys, and the same to be so screwed down to the main beam of the office floor, in the house of Mr. John Gammage, the proposer, at the Blue Railes, etc.; or in whatever other house or place he and the trustees shall agree to be more convenient: and that at all times, they, with him, shall see the money which the subs. pay in for purchasing pay lottery tickets, put in and taken out of the said iron chest, and shall be present at the paying of dividends, and consent and agree to the same, and also consent to and agree with the proposer in laying out the money in such pay lottery tickets, and when they are purchased shall not only see, and be satisfied, that the same are to the value paid for them, and are deposited in the said iron chest, but also shall take an account of the value, numbers thereon and thereof, by whom signed and when payable at the Exchequer, whether they shall go themselves, with the proposer, or with him depute some one, under their hands and seals, who they shall be answerable for, to receive the money on them as it becomes due, as also to have them check'd and register'd at the Transfer Office in Leadenhall Street, London. And that the subs. may be also satisfied as to the security of the tickets, the proposer and trustees will cause the numbers and value of them to be printed and distributed to every one of them; with a *Nota Bene*, that whoever offers to sell or dispose of any such tickets so numbered, etc., they have not a right to dispose thereof; also a printed list of them shall be hung up in the said Transfer Office in Leadenhall Street, London, as also in the office where they are paid at the Exchequer, if it will be permitted, as it's hoped it will, with instructions and request, that if any persons besides the proposer and trustees, or whom they shall depute, by an order under their hands and seals, which shall be written and affixed on two or more of the said printed lists, to be so hung up at the places aforesaid, to compare with, should bring thither any pay lottery tickets of those numbers, etc., to be check'd, etc., in order to receive money on them at the Exchequer (as they must do before the Exchequer will pay them), or to the Exchequer to be received on, that they would not only refuse checking, etc., or paying the said pay lottery tickets, but stop them and the party that brings them, and give notice thereof: that they may be detected. By this means it is utterly impossible that any fraud, collusion or imbezement of the said tickets should ever happen or come pass.

11. The four trustees to be chosen shall for their trouble and attendance have each of them, until the subs. are half full, £5 a quarter, and when they are full, £10 a quarter, or more, as the proposer shall judge necessary (so that the sum exceeds not £20 a quarter), for one whole year from their being elected; and at the end of that year, 4 others shall be chosen in their room from amongst those subs. as have each of them at least £50 in the So., as also in case of the death of any of them during their trust.

12. That Mr. John Gammage the proposer, and no other person (except in case of death, and then whom he shall appoint under his hand and seal, and shall conform to the rules of these proposals), shall be the only proprietor and manager of this So. in concert with the 4 trustees, as to the security, etc., of the money and tickets during the whole 31 years which is the utmost time this So. can last; and that no one of the subs. shall attempt to hinder or molest him, or whom he shall appoint at his death as aforesaid, in the fair and due execution thereof.

13. Within 6 days, or not exceeding 10, after the death of any lives subs. on, the subs. must come to the office, and enter the person's death, and have an affidavit drawn up there by the clerk to be sworn, ascertaining such death, for which entry and affidavit they must pay 2s. 6d. besides stamps, and also by the same hand have a certificate drawn up, paying 2s. 6d. for it, which they must get signed by the minister and churchwardens of the parish where the person died (unless the person dying be a minister himself, and then the churchwardens signing alone will be sufficient), and bring it so signed to the office, with the affidavit, that the proposer and the 4 trustees may be satisfied as to the truth thereof; which when they are, the div. shall be paid punctually within the time limited in the 5th art., deducting only 10 p.c. And upon the receiving their dividend, the subs. is to give a receipt upon the pol. and deliver it up to the office, and must also execute a bond, condition'd that if ever discovered they received the div. fraudulently, it may be put in suing against him; for which bond they must pay 2s. 6d. besides stamps; and the certificate, pol., and bond, are to be filed up in the office.

14. As this undertaking is founded upon and depends solely on the Gov. (which though it be as good a security for the 31 years as the world can afford), the proposer and 4 trustees oblige themselves to no further payments or obligations than what the Exchequer shall pay on the pay lottery tickets to be purchased as aforesaid, but do oblige themselves and hereby declare, that they will punctually as aforesaid divide all money received from thence from time to time to the claimants, pursuant to these art.

15. That lists of subs.' names, age, trade, place of abode, etc., as also the names, age, trade, place

of abode, etc., of those whose lives they subs. on, shall, if it be thought convenient, be printed every year, and distributed to each and every subs., whereby they will see and be satisfied how many die out every year, what dividends they have received, and what lives are changed, and by whom.

16. As no pol. can be signed by trustees, till they are chosen, it is hereby ordered, that until the four trustees are chosen, as mention'd in the 10th art., every person that subs. shall have only a receipt for their subs. money and payments under the hand of the proposer, in the form following mark'd D, which receipt, when the 4 trustees are chosen, the subs. must bring to the office, and have changed for pol., under the hands and seals of both the proposer and 4 trustees, which shall be dated the same as the receipts were.

We have given the preceding proposals entire, from a belief, not so much that they are unique, but the rather that they are but a type of many projects of the same period which have passed away, and left no mark of identity behind. This was a sort of Life, Lottery, and Tontine Asso. all rolled into one. But we have not completed our task. There now follows :

Note.—If the subscriptions be full, and 50 lives out of the 2000 subs. on should drop the first year, £200 (or what more the £20,000 will purchase), divided amongst them, amounts to 44 pounds each; but as it is hardly to be supposed so many will die in any one year out of that number, or in proportion thereto (except some extraordinary sickness, which God preserve us from, should happen), the div. will be the greater to each. And as they dye out and are not to be filled up again, it is not to be supposed but less and less will die every year, as the number of the subs. decreases; and as it is so, and the same sum of £2200 (if not more) being to be divided every year during the whole 31 years, the div. must be the greater, and may after a few years be 2 or 300 pounds a div., nay, the first or second quarter after they are entitled to receive (when the subs. are full) be above £500, as will be shewn by and by; but if it be but 2 or 300 pounds, and that not to come till after a few years, it is a pretty improvement of £10 or £12, which is the most any subs. will pay in the whole. But at the worst, if some lives subs. on should live to near the expiration of the 31 years, as for instance 30 years, which is the nearest to the end of the term, the whole charge is but then about £25, and in that year there may not be 100 lives out of the 2000 standing, and it may be not 50; but if there be 100, out of that 100 ten may not die that year, and perhaps not 5, but if 10 should die, and the £2200 be divided amongst those 10, it comes to £220 each [he has forgot the division with those living as in 9th art. and the 10 p.c. under art. 13], which is very good interest for their £25.

But further than all this. As the dividends are to be made quarterly, as may be seen by the 5th art. foregoing, it may happen, that not above 1 of the lives subs. on may die in some one quarter, and if so the subs. on the life of that one person will receive the whole quarter's money, which (when the subs. are full) will be £550, and if it should happen, as is not impossible, that in some one quarter not one should die, and in the following quarter but 1 should die, the div. on that one would be doubled, and be £1100, because, if none should die one quarter, that quarter's money must go and be paid to and amongst the subs. on the lives that shall die in the next quarter.

And since the lives are not to be filled up as they die out, it is not to be doubted that some will subs. 10 or 20 times £10 on one life, which when it drops makes the advantage still the greater; so that it is not impossible that a subs. may get a great deal more by this So. than what is mention'd above.

Although they that subs. on a life when that life dyes, and they have received their div., their expectations of further benefit in the So. are at an end, which may be discouraging, yet 'tis not doubted, but upon their applying to the office, they may hear of subs. who may be necessitated or willing to sell their pol., so that they may be in again, and then if they should not like the life it is upon, they may change it for another, as the 8th art. foregoing shews.

We now turn to some of the forms referred to; and first: “(A) The form of the pol. mention'd and refer'd to in the 2nd art. foregoing.”

This pol. is given by the *Equitable So.* to . . . a subscriber on the life of . . . who do hereby oblige themselves to pay to the said . . . his executors or administrators, on the death of the said . . . such a proportion, share or div. of the money, pursuant to the book of proposals of the said So., as shall arise, grow due, and be paid from the Exchequer, upon such pay lottery tickets as are or will be purchas'd for the use of the said So.; the said . . . having in all things conformed himself to the art. in the said book of proposals of the said So.; in witness whereof we have hereunto set our hands and seals the . . . day of . . . 1712. [To be signed by the “proposer” and the trustees.]

The remaining forms call for no special notice; but here is something that does:

Note.—This book of proposals has been perus'd by eminent council learned in the law, whose opinion (given under his hand) is, that it is not within the late Act, or any of the Acts of Parl. prohibiting lotteries, offices, etc., nor the so. within the danger of forfeiture in those Acts mentioned.

Note also, That for the better preserving the right of Copy of this book to the Proposer (who is the proprietor thereof), it is entered in the regis. book of the Co. of Stationers, and 9 of the printed copies deliver'd to the warehouse-keeper of the said Co., according to the Act of Parl. for vesting the copies in the authors or proprietors thereof: so that if any person shall offer to print, re-print, or pub. the same, or cause it to be printed, re-printed, or pub., without the consent of the author or proprietor, such person shall be subject to the forfeitures and penalties in the said Act mentioned.

We hear no more of the project after this its first announcement. [LOTTERIES.]

[TONTINES.]

EQUITABLE SOCIETY OF ANNUITANTS.—This So. was founded in London 19 April, 1770, for the purpose of providing its members with an annuity of £50 on reaching the age of 50, provided they had been contributing to the funds for a period of ten years at least. By the rates of contribution charged to the members, the So. could only afford to pay an ann. of £21 10s. instead of £50 promised. We presume the Society speedily died out.

EQUITABLE SOCIETY, THE.—This So., of which all who are concerned in Life Ins. know at once so much and so little, has a hist. full of interest. The reducing of this hist. into form and order has never until now—112 years after the actual formation of the So.—been seriously attempted. We enter upon the task with some misgivings. While the materials appear to be abundant, they in reality are not so. There is indeed a perfect plethora of pamphlets, addresses, short accounts, etc., etc. But these are more or less *ex parte*, and consequently misleading. Those impartial records from which alone real history can be made—where are they? An asso. which trades, nay even exists, upon its popularity—as an ins. asso. necessarily must—does not usually promulgate, even if it preserve, any records calculated, however slightly, to cast a dark shadow on its pedigree.

There is hardly an asso. existing or passed away which has not in its course encountered such incidents; but it is regarded as one of the first duties of the management to consign all such matters to speedy oblivion. In the present instance that rule of conduct has not been entirely pursued. As we have intimated, the real difficulty here is occasioned by the vast number and extent of the *ex parte* and conflicting statements pub. These have been analyzed, dissected, compared. The reader will be left to judge very much for himself. Our proper task is accomplished when we have furnished the facts impartially and in a readable form.

It has been said that the hist. of the *Equitable* is the hist. of Life Ins. in this country. If that be not strictly true, it is yet much nearer the truth than the uninformed could imagine. The events in its hist. have reflected themselves upon the later estab. ins. asso. in a very marked manner. That its own success has been made up from many causes—some of which appear, when subsequently reviewed, to have been of a very accidental character—will, we think, become manifest to the reader when he has carefully considered the following chronicle.

The proper title of the Asso. is: *The So. for Equitable Assurances on Lives and Survivorships*; yet it is, and long has been, known simply as *The Equitable So.*—based upon the name inserted in the proposed Charter, viz. *The Equitable So. for Lives*. That it took some 6 or 7 years from the date of the first inception to the actual foundation of the So.—during which preliminary period many of the most interesting occurrences associated with its hist. occurred—we shall have occasion to make plain.

Regarding the actual origin of the So. two versions are current: 1. That Mr. James Dodson, author of the *Mathematical Repository*, desiring to ins. his life, and being rejected by the *Amicable*—whose scheme of ins. limited the age of acceptance of members to 45—set himself to work to propound a scheme by which rates of prem. should be charged in accordance with the age of the proposer, and which plan would obviate the exclusion of lives of this comparatively early age. 2. That Mr. Thomas Simpson, the well-known mathematician, was about the same date lecturing on the subject of the ins. and annu. asso. of that period, and that he originated the idea of forming an ins. asso. constructed upon more scientific methods than any that had preceded. These statements are not inconsistent with each other; and they may both be true. It is remarkable that in nearly all great improvements more than one mind has been at work. These respective statements will be further observed upon a little later.

1756.—The first actual announcement regarding the proposed So. was an advertisement bearing date 28 February, 1756, which appeared in the newspapers, giving notice of a meeting intended to be holden on the 2nd March then following; and desiring at that meeting the company of such gentlemen as might be disposed to engage in such an undertaking. We have searched all the principal libraries in Lond., as also the Bodleian Library at Oxford, for this advertisement, but without success.

At the meeting holden in consequence, there were present seven persons besides some gentlemen, members of the *Amicable So.*, which last-mentioned gentlemen having left the room, the others who remained behind agreed to meet on the Tuesday following, in order to concert ways and means for estab. a so. for insuring lives.

They did accordingly meet on the day appointed, and continued to meet weekly till the number of those who were engaged in the design amounted to about 100.

In the *Public Advertiser*, 8 March, 1756, appeared the following advertisement:

Insurances on Lives.—The gentlemen who have assisted at the two former meetings, at the Queen's Head in Pater-noster Row, to examine the proposals advertised in the *Daily Advertiser* concerning a more easy, general, equitable, and advantageous method of insuring lives than any hitherto practised, and to concert proper measures for carrying the same into execution, will meet there again to-morrow, the 9th March, at 6 in the evening precisely, to make a further progress therein; at which time and place the company of such other gentlemen as are disposed to engage in an undertaking of this kind is desired.

Note.—It is proposed to insure lives, either for a single year, or a number of years certain, or for the whole of life, on prems. proportionate to the several years of the insured (provided the same be not less than 8, nor greater than 67 years), which prems. will be in most cases much cheaper than usually paid; in some cases not one-half of them; and the risque is proposed to be borne by the whole body, as in the *Hand-in-Hand* and *Union Fire Offices*.

As 'tis designed to make this undertaking as universally useful as possible, it is hoped, if any case of ins. on lives, which may be expected frequently to occur, is not above provided for, that notice thereof will be communicated to the next meeting, in order to its being inserted in the proposal, if approved of by a majority.

What immediately followed we hold in abeyance for the moment.

It is important at this point to endeavour to clear up the question of the origination of the Society. We have before us several distinct accounts, from as many distinct authorities, called into existence by varying circumstances. These we shall present in their chronological order.

In 1769 the directors of the So. caused to be circulated a pamph. : *A State of the So. for Equitable Assu. on Lives and Survivorships, and a state of facts from the year 1756 to the present time. Laid before the General Court the 28 July, 1769, by the Court of Directors.* From this we draw the following passage:

1756.—In this year Mr. James Dodson, having been refused admission to the *Amicable So.* on account of his age, determined to form a new so. upon a plan of assu. on more equitable terms than those of the *Amicable*, which takes the same prem. for all ages. Having communicated this plan to

several persons, they proposed to join him therein, if the intended so. could be estab. by charter. The number of persons which engaged in this design were at first 55, and before they proceeded towards obtaining a charter, they set about providing a fund; and previous even to this consideration they held consultations about the plan of reimbursement and recompense that should be made to Mr. Dodson and themselves. . . .

In a document (prepared in 1769) arising out of the proceedings in reference to the Charter Fund, to be hereafter noticed, and signed Richard Glyn, J. Sylvester, William Sclater, Edward R. Mores, and Josiah Wallis, there is the following :

The subscribers admit that in the year 1756 Mr. Dodson, not being able to obtain admission into the *Amicable* So. on account of his age, conceived a design of forming a so. upon the principle laid down by the late Dr. Halley, in his *Obs.* on the *Breslau T. of Mort.*, viz. that the price of ins. on lives ought to be regulated by the age of the person on whose life the ins. should be made. And that he, Dodson, caused to be inserted in the public papers an adv., etc.

Mr. Francis Baily, in his *Doctrine of Annu.*, etc., 1810-13, speaks of the So. as being "formed in consequence of Mr. Simpson's lectures recommending such an inst. *It appears likewise that Mr. Dodson was active in recommending the plan of this So., and composed some T. for its use.*"

Mr. Nichols, in his well-known work, *Literary Anecdotes*, etc., pub. 1812, gives a memoir of "Edward Rowe-Mores, Esq., M.A.," of whom we shall hear a good deal a little later, and therein occurs the following passage :

The *Equitable* So. for assu. on lives and survivorships by annu. of £100 increasing to the survivors in 6 classes of ages, from 1 to 10—10 to 20—20 to 30—30 to 40—40 to 50—50 to the extremity of life, owes its existence to Mr. Mores. It had been first suggested and recommended in lectures in 1756, by Mr. James Dodson, Mathematical Master at Christ's Hospital, and author of "The Mathematical Repository," who had been refused admission into the *Amicable* So. on account of his age; but he dying Nov. 23, 1757, before his design was completed, except the plan of reimbursement to him and his 54 associates, Mr. Mores undertook to apply for a charter in 1761. . . .

What the first few lines of this para. may mean certainly does not seem very clear.

In 1823 Mr. William Morgan, the then Act. of the So., pub., *A View of the Rise and Progress of the Equitable So.*, etc., wherein he gives the following account of the origin of the So. [we quote from the 2nd ed., 1829] :

The *Equitable* So., after a few ineffectual attempts during the five or six preceding years, was finally estab. on the 16th Sept. 1762, and in a great measure owed its existence to the justly-celebrated Mr. Thomas Simpson, who recommended the formation of such an inst. With the view of proceeding on his principles, recourse was had to the assistance of Mr. Dodson, an eminent mathematician, to furnish the So. with correct T. of prem. for assu. single lives both for terms and for their whole continuance. In these computations, Mr. Dodson for greater security, etc.

We shall show what data Mr. Dodson employed when we reach that part of our hist.

In a pub. issued by authority of the So. in 1833, consisting of the D. of Sett. of the So., its bye-laws, orders, reports, addresses, etc., we find the following note (p. 219) :

This So. was founded in the year 1762 in consequence of lectures, recommending such an inst., which had been read by Mr. *Thomas Simpson*; and the prem. then adopted for its practice were computed by Mr. *James Dodson*; who, in order to secure the stability of the inst., had chosen a T. of obs. in which the prob. of life were so low that the prem. of assu. derived from it were nearly twice as high as those which are required at present.

The late Prof. de Morgan in a paper contributed to the *Assu. Mag.* as recently as 1868—*Some Account of James Dodson, F.R.S.* [vol. xiv. p. 341]—says :

Dodson, thus comparatively enriched and estab. [by his appointment as Master of the Royal Mathematical School], wanted to ins. his life, and found that the *Amicable* received no lives over 45. He accordingly set himself (1756) to found a new office; and thus became the projector of the *Equitable* So. as presently described. Thomas Simpson was lecturing on the subject, with a view to a new office: Dodson called a meeting by adv., and formed a committee. I find no trace of concert. . . . A manuscript lecture of the period was lent to me many years ago, which showed no sign of being either by Simpson or by Dodson. Perhaps the plan was stirred in several quarters.

We think after careful reflection that this last view represents the real facts of the case.

On the 5th May, 1756, Mr. Edward Rowe-Mores came upon the scene, at the instance of the first promoters, and in view, as it would seem, on his side, of cultivating the friendship of Mr. Dodson. The promoter's view in inviting the co-operation of Mr. Mores has been subsequently stated on the authority of that gentleman, as follows :

Immediately after he had signed the engagement, he perceived the reason for which he had been so greatly urged to it; and the reason was this—that he was a Fellow of the So. of Antiquaries, who had then lately obtained a charter of incorp., and was thought therefore well able to inform the gentlemen associated with Mr. Dodson of the measures necessary to be pursued in such an attempt, and of the expenses which would attend the pursuit.

Mr. Mores was destined to play for some years a prominent part in the fortunes of the So. and his name will, as we have intimated, become quite familiar.

It appears from the first to have been the opinion of the promoters of the So.—erroneous as it turned out—that such a design could not well be carried out without the sanction of a charter; but as this was known to be attended with considerable expense, steps towards raising the necessary funds had to be taken.

On the 2nd June, a meeting of the promoters took place, when a proposal was submitted and considered. A week later and an agreement between the parties was prepared, and a subs. opened. As this agreement has an important bearing upon events which follow, it is necessary to give it entire :

Whereas the persons who propose the estab. of a corp. for the more free and equitable ins. of lives have on this 9th day of June, 1756, agreed to the following resolutions, that is to say—

1. That as soon as a charter shall be obtained, or that the same can be legally done, the proper

officers of the said intended corp. shall, in the name and under the common seal thereof, give good and sufficient security in the law for the payment of the sum of 10s. upon every £100 that shall be ins. by the said corp., immediately after granting the ins. to the person or persons, their nominees (to be appointed within 3 months then next following) or their assigns, who shall have voluntarily subs., and shall have actually paid the sums so subs. towards the charges of applying for and obtaining the said charter, and other charges relative thereto, or to any committee of them, to their treasurer, or to any banker by them appointed, so long as any of the said subs., or of the persons by them to be so nominated, shall be alive.

2. That the said intended corp. as a corp. shall not interfere with the said subs., their nominees, or any committee of the same; but they or the major part of them shall be at liberty to make such dividends of the sums so to be paid by the corp. among themselves, and at such times, and in such manner, as they shall think proper.

3. That they the said subs., or any committee to be appointed by the majority of them, shall be deemed to be a committee of this So. estab. for the purposes of soliciting a charter, but shall not subsist as such after the same shall be obtained.

Therefore we, whose names are subs. to the after-written engagement, or promissory note, upon the credit of the said resolutions, and in confidence that the same will be punctually performed by the intended corp. upon their obtaining a charter at our expense, have agreed to contribute the sums of money against our names respectively set, toward the defraying the expense of applying for and obtaining a charter for the said purposes, and such other charges as may accrue before the obtaining the same; and do oblige ourselves to the performance thereof; and do promise to conform to such resolutions as shall from time to time be made and agreed to by us, or the majority of us, which shall not be contrary to law, or to the terms and conditions contained in the proposal, approved of as the basis of this voluntary subs.; which terms and conditions are to the effect following; that is to say—

Firstly—That on Wednesday the 31 June, 1756, we or the majority of us who shall have then subs. shall and will choose a committee, consisting of a treasurer and 6 others, to be called the charter committee, any 3 or more of whom shall have power to do any bus. relative to the soliciting the said charter, and directing the payment of the expense necessary thereto; also to order and require the payment of such part of the sums by us severally hereunder subs. as they shall see requisite for that purpose, and to direct the placing out or depositing the same in the hands of some eminent banker, if they shall see fit; which committee shall and may yearly, and oftener, be changed or renewed, as to us and our nominees or to the majority of us and them shall seem meet.

Secondly—That at any time not exceeding 3 months after the obtaining the said charter each of us may nominate a person then alive to enjoy the benefits of the dividends after mentioned, if such person shall survive the person so nominating.

Thirdly—That once in every quarter of a year after obtaining the said charter, that is to say on the first day of meeting after each of the feasts of Midsummer, Michaelmas, Christmas, and Lady-day, the sum or sums of money then remaining in the hands of the intended corp., or in the hands of the treasurer of the said committee or their banker, which belong to the said subs. and our nominees, shall be divided among the survivors of us the said subs. or our surviving nominees, in proportion to the number by us respectively subs. and paid; and that the last surviving subs. or nominee during his or her natural life receive and enjoy the whole sum or sums of money becoming due from the said intended corp., during the time of such his or her survivorship.

Fourthly—That each of us, and, after our decease, each of our nominees, may assign his or her interest in the said dividends, upon entering the said assignment upon the books of the charter committee.

Fifthly—That if the said charter shall not be obtained, then the sums remaining in the hands of our said treasurer and committee or their banker shall be divided between and returned to us the said subs. in proportion to the sums by us severally subs. and paid.

And in order more especially to bind ourselves to the contributing the said several sums of money for and towards the purposes aforesaid, we have voluntarily subs. the following engagement or promissory note:

We, whose names are hereunder written, do for ourselves, severally and not jointly, nor one for the other, promise to pay to Dr. John Silvester, Edward Wade, and Edward Rowe Mores, Esquires, or their joint order, the sums set against our several names, upon demand, for value received, the day and year before our several names respectively set.

At this time not more than 43 persons joined in the subs.

The subscription entered upon in the manner we have seen, the next step was the issuing of "proposals," i.e. in modern phrase a prosp. We have searched in many places, over a long period of years, for a copy of this document, of which "thousands were dispersed among the people," but without success; and yet we doubt not there are copies within reach. We know that it stated the objects of the promoters to be "for estab. a so. or corp. for insuring lives and survivorships upon more free, open, general, and equitable terms than had hitherto been offered;" and that it contained also the following art.:

That each person insuring shall, at or before the granting of such ins., besides the charge of the pol. and the proper prem., pay 15s. on every £100 insured; 5s. to the person who has or shall make the necessary calculations, and the remainder towards the charge of obtaining a charter.

These "proposals" brought the support and adhesion of a number of persons who undertook to ins. in the So., and we have reason to believe that most if not all of these persons paid the entrance fee in advance.

There were thus two bodies of persons interested in the advancement of the So.—(1) those who became known as the Charter Fund Proprietors, under the preceding agreement, of whom we shall hear so much hereafter, and (2) those who had undertaken to ins. in the corp. when the charter should be obtained. On the 30th June the subs. to the Charter Fund elected their committee, of which Mr. Mores became a member.

It is clear that before the issue of the prosp. already quoted, an arrangement had been come to with Mr. Dodson regarding his remuneration. Indeed we find a record of the fact (but without date), that of the entrance money 5s. "should be paid to the said James Dodson for his life, for his pains and trouble in planning the said So., and making the necessary calculations."

Regarding Mr. Dodson's calculations, we find no complete or connected record; but we do find an extract purporting to be "Mr. Dodson's own account of his calculations," as follows: That on a supposition, the So. should assure 8165 persons in £100 each, at

one time, and they should continue assuring for 20 years, if they so long lived, the number of deaths that would happen, and claims thereon that would be made in the first 10 years, upon a supposition of the mort. of 1741, would make eight calls upon the proprietors to be necessary; and upon his mean calculation was the So. to come to a resolution of breaking up, and any other So. was, upon his plan, to take the remainder of the lives and assu. off their hands, it would only leave a clear profit of £16,000 in favour of the So.—and that profit would arise from his making the prem. payable at the beginning of the year, and the claims payable at the end of the year in which they became due. “In every other respect Mr. Dodson’s calculations are upon the principle of penny for penny; but he recommends great care and caution in the choice of the lives proposed to be assu.” We here follow closely the authority of the Committee from whose rep. we obtain the account.

We have made many efforts to obtain a copy of the actual scale of prem. produced by Mr. Dodson and placed before the Law Officers of the Crown. We believe the following to be the rates it furnished. But whether this be the complete T., or only an abstract from it, we have no means of ascertaining.

At the Age of	Whole term prem. for Males;	for Females.
14	£2 17 0	£3 3 11
20	3 9 4	3 14 3
25	3 14 0	4 1 5
30	3 18 7	4 4 4
40	4 17 9	5 4 8
49	6 2 5	6 11 0

It was always understood that the prem. he furnished were the pure prem. deduced from the T. he employed; no add. or loading having been put upon it for expenses.

Mr. W. Morgan, in his *View*, etc., prepares us for the highness of the scale by the following:

In these computations Mr. Dodson, for greater security, assumed the prob. of life in Lond. during a period of 20 years, which included the year 1740, when the mort. was almost equal to that of a plague—rendering such prem. much higher than they ought to have been, even according to the higher prob. of life in London itself.

Dr. Price also said: “The values of assu. on lives are given in these T. somewhat too high for the inhabitants at large even of Lond. itself; and much too high for the better part of the inhabitants.” It is certain that the mort. of 1740–41 was greater than had been experienced in any year since the plague of 1665.

1757.—In Feb. of this year the Rt. Hon. Hugh Lord Willoughby of Parham, being then President of the So. of Antiquaries, was, at the instance of the Committee of Charter Fund Subs., through Mr. Mores, solicited to join the enterprise. We are told he “condescended to patronize the design, and consented that his name might be used in the petition for a charter.” We shall hear more of this matter hereafter. The names of the Hon. Dr. Molesworth, of Sir Robert Ladbroke, and of Mr. Dingley, were about the same time obtained for the like purpose.

On the 16th or 17th April, 1757, a petition was presented to the Secretary of State’s office by the promoters, of which the following is the substance; and which sets out the scheme upon which the So. was proposed to be worked:

That great numbers of His Majesty’s subjects, whose subsistence principally depends on the salaries, stipends, and other incomes payable to them, during their natural lives, or on the profits arising from their several trades, occupation, labour, and industry, are very desirous of entering into a so. for ins. the lives of each other, in order to extend after their decease the benefit of their present incomes to their families and relations, who may otherwise be reduced to extreme poverty and distress, by the premature death of their several husbands, fathers, and friends, which humane intention the petitioners humbly apprehend cannot be effectually carried into execution without His Majesty’s royal authority to incorp. them for that purpose.

That to effect their said humane intention, the petitioners beg leave to propose the following plan, viz.—

That the petitioners shall form themselves into a So. for the assu. of lives, and that they and their successors shall have power to grant pol. for that purpose.

That on granting such pol. the petitioners and their successors shall receive, and from time to time continue to receive, from the persons to whom the same are respectively granted, a prem. or premiums proportionate to the chance of death attending the age of the life or lives assured, and the term of years for which the same shall be respectively assured.

That on granting such pol., the petitioners and their successors shall also receive from the persons to whom the same are respectively granted, a deposit of a further sum to answer the ends of a joint stock or fund; which deposit shall be placed out on Gov. or other sufficient securities, and there remain to make good any deficiency or deficiencies that shall or may happen to be in the fund arising from prem., by means of an unusual mort. amongst the members of the said So., or by any other means whatsoever.

That no such pol. or policies of assu. shall be granted to any person or persons until he or they shall have signed or executed a declaration or covenant, purporting that he or they do voluntarily enter into and become a member or members of the said So., and will so continue during the term or terms for which the pol. or policies to be granted to him or them shall respectively continue in force, and will bear or pay their proportion or proportions of any loss or losses, which during such term or terms shall or may happen to the said So., and exceed the amount of the prem. and deposits to be paid as aforesaid.

That the petitioners are ready and desirous to ascertain and fix the several prem. and deposits proposed to be by them and their successors taken as aforesaid, and also to be restrained from acting contrary to their said plan.

That estab. by His Majesty’s royal charter of a free and open office of ins., upon the plan aforesaid,

will, as the petitioners, with great submission, apprehend, be more equitable than any hitherto proposed, as being calculated for the sole benefit of the persons assured, a method not hitherto practised; and will, as the petitioners humbly hope, in a variety of instances, prevent the before-mentioned inconveniences, and be productive of the greatest advantages to the public.

That there is at present subsisting but one corp. for perpetual assu. on lives, which, as the petitioners humbly apprehend, acts upon so circumscribed and narrow a plan, that very few of His Majesty's subjects do receive any benefit from it, in comparison of the great number to whom the benefit of such an ins. might be extended.

The petitioners therefore humbly pray that His Majesty, out of his royal grace and favour, will be pleased to grant His Majesty's royal charter for purposes aforesaid, unto . . . by the name of "The Corporation for Equitable Assurances on Lives," under such restrictions as to His Majesty in his royal wisdom shall seem meet.

This bore the signatures of the Hon. Coote Molesworth, of Chichester, Doctor of Physic, and Fellow of the Royal Society; Sir Richard Glynn, Knt. and Bart., Alderman of London; Thomas Pickering of London, D.D.; John Sylvester, of London, M.D., F.R.S.; and 78 others, in behalf of themselves and many others, His Majesty's dutiful and loyal subjects.

This petition passed through the ordinary stages; and was in due course referred to the Law Officers of the Crown to examine into and report upon it. The then existing offices transacting life bus. as of course lodged caveats against its prayer being granted, until they had been respectively heard by counsel against it.

On the 23 Nov., and before any hearing of the petition had been obtained, Mr. Dodson died. His death caused great dejection among the petitioners; "but as matters had been carried so far, they determined to go on to a hearing—Mr. Mores undertaking to conduct the business."

1758.—We suspect the hearing of the petition came on early in this year, but we have no authentic details. The result was unsuccessful for the promoters. This occasioned a defection amongst the subscribers; "but as there remained some who were hearty in the cause, they requested Mr. Mores to prepare for a second hearing, and to remove those objections which had been made at the first." Mr. Mores has placed on record that he readily assented, "although he had at this time no more than one single share;" and he further says that not any of the subs. had any more than 3 shares then.

1759.—A second hearing was had, we assume in 1759, but we are here again left without any actual certainty. We know, however, that although many of the former objections were removed, the promoters were again unsuccessful. We further know that at the present as well as the former hearing, one of the main objections was on account of the petitioners not proposing a fund or cap., "which appeared more than ordinarily necessary in a so. proposing to assure on such low prems."

This second defeat diminished yet more the number of subs.; but some still remained who were for making a further trial, and at their request Mr. Mores went forward a third time; and for this contest great preparations were made.

In view of getting over the difficulty "of the lowness of the prems.," affidavits were obtained from Mr. Peter Daval, the Rev. Dr. Brackenridge, and Mr. Mountayne, all eminent mathematicians, and the two former stated to be "particularly conversant in inquiries and calculations of this sort." [BRAKENRIDGE, REV. WM.] The tenor of their affidavits was, "That they had carefully examined the said prems., and found the same to be more than adequate to the risque of mort., and larger than the real sums for which the assu. proposed might be safely made; and that as the excess or difference was all along in favour of the assurers, they must, in all human prob., be gainers by granting assu. upon lives at those prems."

1760.—On the 2nd April, 1760, Mr. Mores succeeded for the third time in getting the petition before the Law Officers of the Crown. A draft charter was submitted on behalf of the promoters, modifying the clauses which had raised objections on the preceding occasions. They further obliged themselves (in view of further meeting the objection to the inadequacy of the prems.) to take a *deposit of 1 p.c. for every sum ins. for a single year; 2 p.c. for a number of years under 10; and 3 p.c. for a longer term, or the whole continuance of life.* [In the deed as afterwards drawn these figures were modified.] By this charter it was proposed that 5 persons were to be made "perpetual visitors" of the So., with power to sit among the directors, though they themselves were not to be members of the So. What the precise object was does not now appear.

1761.—This third contest was in all respects a severe one. On the part of the promoters it was indeed one of life or death. The law officers still harped upon there being no sufficient subs. cap. Were they thinking of the precedent of the two great ins. corp. of 1720, and the way they escaped from other objections raised? The fight came to an end; but yet the result was not known. Finally (and we here quote from Mr. Mores), they, to their great surprise, were given to understand that they would yet fail of success, and that the rep. would be against the prayer of the petition; "at which the petitioners being irritated, as conceiving themselves unjustly treated, and desirous of knowing what now obstructed their success, when they had all reason to imagine that their success was certain, resolved to insist on a rep., as they had a right to do." But this rep. was in a manner refused. The promoters were told that it was not usual to require a rep. when it was known that such rep. would be in disfavour of the party who required it. The petitioners nevertheless

persisted in their resolution; "and after a long solicitation, a most tedious attendance, and extreme labour," upon the 20 July, 1761, obtained the following, which, besides being a remarkable State document, constitutes an important feature in ins. hist. Hence we give it entire, except as to its recitals of the petition, which we have already given in detail. Here it is:

Upon this petition your Lordships will be pleased to observe,—

1st. *The petitioners propose to ins. upon cheaper terms, and for a longer time, than is practised at present in any offices, to which end they have specified the rates at which the assu. is to be done.*

2nd. They propose to raise a cap., by investing the prem., together with a small add. sum of 40s. to be deposited by every person insured, to answer all losses; and by way of further security, to oblige every person insured to become a member of the corp., and to declare or covenant that he will bear his proportion upon any call, if the prem. and deposits should prove deficient.

Upon these proposals we are required to deliver our opinions, whether it will be proper for His Majesty to grant the petitioners a charter of incorp. for these purposes.

We having been attended with counsel on behalf of the said petitioners, and also by counsel on behalf of the Governors and Cos. of the London and Royal Exchange Assu. Cos., and also on behalf of the corp. of the *Amicable So.* for a perpetual assu. on lives, in Serjeant's Inn; the said companies and corporations having entered caveats with the Attorney-General against granting the prayer of the said petition, and the said petitioners and their opponents having produced the several affidavits annexed to this our Rep., we have proceeded to examine the same, and after the best consideration we have been able to give the subject, we are humbly of opinion to advise His Majesty not to comply with the prayer of this petition, for the following reasons:—

1st. Because it appears to us altogether uncertain whether this project will or can succeed in the manner in which it is proposed; and if the success is uncertain, the fund for supporting it, which is to arise from the profits of the undertaking, will be precarious.

This last consideration is in our opinion a fatal objection to the scheme, for though an undertaking plainly calculated for the benefit of the public may in some instances deserve encouragement, even where the success is dubious, yet in such cases the projectors alone ought generally to abide the peril of the miscarriage.

In the present proposal therefore, whatever else may be hazardous, the cap. or fund to answer losses ought to be certain and liable to no casualty, for which reason, when the legislature enabled His Majesty to erect the two Corp. of the *Royal Exchange* and the *London Assu.*, they thought it necessary to oblige these bodies, in the first place, to raise a large cap. before they began to insure,

2nd. *The success of this scheme must depend upon the truth of certain calculations taken upon tables of life and death, whereby the chance of mortality is attempted to be reduced to a certain standard: this is a mere speculation, never yet tried in practice, and consequently subject, like all other experiments, to various chances in the execution.*

The tables upon which the calculations are built are the Bills of Mort. of London, and the Breslau tables, and admitting them to be strictly accurate (of which there is strong reason to believe the contrary), they are compounded of diseased as well as healthy persons, of those who are embarked in dangerous as well as other employments, without pointing out the proportions they bear to each other, and yet as the petitioners propose to insure only such even of the healthy as are not employed in dangerous occupations, the register of life and death ought to be confined, if possible, for the sake of exactness, to such persons only as are the objects of ins.; whereas the calculations offered embrace the chance of life in general, the healthy as well as unhealthy parts thereof, which, together with the nature of such persons' occupations, are unknown numbers.

As the fund to answer losses must depend principally upon the prem. (for we pay but little regard to the small deposits or the personal covenant), the project should be sure of success; otherwise the adventurers will be undone, or greatly injured, and the calamity will fall the heavier, because it will fall principally upon the poorest sort, the rich having no temptation to insure. Under these circumstances, if there was no other objection to the scheme proposed, the uncertainty of success would make us fearful of advising the charter.

We are the more apt to doubt of the event, because it has been represented to us by the affidavit of Mr. Savage, that all the profit which has been received by the *Royal Exchange Assu.*, from the time of its commencement to the present time, amounts only to a sum of £2651 4s. 6d., the difference between £10,915 2s. 2d. paid in prem., and the sum of £8263 17s. 8d. disbursed in losses, which small profit must have been near exhausted in the charges of management. If then this corp., who are charged with taking unreasonable prem., have reaped no greater profit, we can hardly expect a more considerable capital to arise from lower prem.; and the hazard of loss will be increased in proportion as the dealing will be more extensive.

The Crown has very wisely been always cautious of incorporating traders, because such bodies will either grow too great, and by overwhelming individuals, become monopolies; or else, by failing will involve thousands in the ruin attendant upon a corporate bankruptcy. As trade seldom requires the aid of such combinations, but thrives better when left open to the free speculation of private men, such measures are only the expedient where the trade is impracticable upon any other than a joint stock, as was thought to be the case in the East India, South Sea, Hudson's Bay, Herring Fishery, and in some other cos. erected upon that principle; but there does not appear to be any such necessity in the present case, because the bus. of insuring lives is carried on not only by the two great cos. already mentioned, but such pol. are duly underwritten by numbers of private men; and we think that, if the profit was so enormous as the petitioners have endeavoured to represent, upon the terms now, and for many years practised in the City of Lond., there would not have been wanting enterprising persons to have reduced the prem., and drawn this branch of dealing to themselves by underselling the market. If the petitioners, then, are so sure of success, there is an easy method of making the experiment, by entering into a voluntary partnership, of which there are several instances now subsisting in this bus. of insuring; and, if upon such a trial these calculations are found to stand the test of practical experiment, the petitioners will then apply with a much better grace for a charter than they can at present, whilst the scheme is built only upon speculative calculations.

3rd. The Parl., in erecting the two great cos. already mentioned, have sufficiently declared their opinion, that such charters ought not to be granted without some benefit accruing to the public, and were not sure when they passed the Act whether they were not erecting a nuisance; to prevent which a power was reserved to the Crown to abolish the corp. at any time within the term of 31 years, if they should be found upon trial to be mischievous or inconvenient; and we cannot help observing that, except only in the case of the *Amicable So.* of Serjeant's Inn, and which is formed upon a very narrow bottom, the Crown has never, of itself, so far as appeared to us, granted such a charter as the present, in any case whatsoever; and, as the two great companies paid a very large sum to the public for the privilege of their charter, we cannot advise the Crown to entrench upon their rights on the bare request of any set of men, without a clearer and more certain prospect of public good.

It is for these reasons principally that we find ourselves under a necessity of advising His Majesty not to comply with the prayer of this petition, and though we are fully persuaded that those worthy

gentlemen who have made this application are really convinced that this scheme will prove advantageous to the public, as well as profitable to themselves, yet we have not sufficient evidence to satisfy us that either of these ends will be answered, or that any necessity of the times requires the table to be extended under a charter of incorp. All which is humbly submitted to your Lordships' consideration by your Lordships' most obedient servants,

C. PRATT,
C. YORKE.

Tuesday, July 14th, 1761.

The hopes of a charter being now at an end, the generality of the orig. subs. dropped the scheme, upon which £600 had been already expended. To the few, the para. in the rep. taunting the promoters with not having sought to accomplish their end by means of a voluntary partnership afforded yet some hope. It was seized upon with alacrity; and steps were forthwith taken towards that end. Indeed, in the preceding year, after the second defeat, such a step seems to have been contemplated.

Mr. Rowe-Mores now more than ever came to the front. It was clear that if the project was to go forward in any shape, he was the only man who could direct it. Without waiting for the rep. of the law officers (the result being known), he had prepared a draft deed, which, oddly enough, was read at a gen. meeting of the promoters, held 15 July, 1761—the day after the date of the adverse rep.—and was approved.

On this occasion a *new subs.* was opened, in order to raise a further sum to defray the necessary expenses of carrying the design into execution. And as the money subs. and paid upon the 10s. entrance fee was nearly exhausted, but by Mr. Dodson's death the 5s. reserved for him remained unappropriated, it was agreed that the said 5s. should be applied as a recompense for the money which should be raised upon this new subs. [In what form it was applied is not stated.] The old subscribers were invited to join in this new subs., but very few of them did so. The new subs. contributed in larger proportions, in order that there might be no further want of money in completing the design; and unless indeed they had done so, the project could not have gone forward. Some of the old subs. who had stood by the project from the beginning now wanted to be created directors for life. This scheme for a "perpetual directorship" was violently opposed; but as it was said that Mr. Dodson had made such a stipulation in his own favour, this was now awarded to Mr. Mores, and to him only, as being Mr. Dodson's successor.

1762.—The disputes arising from the causes last stated created delay, and matters had tided into another year. All things being at length amicably adjusted, the D. of Sett. was finally agreed upon and prepared for execution. It was executed by each of the 16 remaining Charter Fung Proprietors, and it provided, as was but fair, for the interests of the new subscribers.

The Deed (which was drawn by Mr. Mores, and differed in many respects from the draft of the charter orig. prepared) consists of 79 clauses, and bears date the 7th Sept. 1762. We propose to pass in review its main provisions. Its preamble sets forth:

Whereas from mature consideration it appeareth that many advantages and great benefits may arise and be secured to great numbers of persons in particular situations of life and circumstances of fortune, from the estab. of a So. to be composed of such persons as shall be qualified and be willing to become mutually contributors for *equitable assu. on lives and survivorships upon premis. proportionate to the chance of death attending the age of life to be assured, and to the time such assu. is to continue.* And whereas such assu. may and will, with safety to the assurers and equity to the assured, be made in manner hereinafter specified.

Then follow clauses 2 to 6 inclusive, setting forth the rules, first, for insuring a healthy boy or man, whose occupation shall not be hazardous, for a single year, or ann. from 8 up to 40 years of age. Then clauses 7 to 9 inclusive, rates for healthy males or females under like conditions from 50 to 67 years. [These rates can be more conveniently given in our notice of the prosp. of the So. called a *Short Account*, etc., fully reviewed hereafter.]

10. For the assu. of a life of any intermediate age, within any of the periods afore-mentioned, upon payment of a prem. so much greater than the prem. herein-before assigned to the least extreme, and so much less than the prem. herein-before assigned to the greatest extreme of each respective period, as the chance of death attending such intermediate age shall be greater or less than the chance of death attending the extremes of that period within which such intermediate life shall fall.

We next have an insight into what were regarded as "Hazardous Assu": "11. For the assu. of the lives of girls, and of women under 50 years of age, and of men whose occupations shall be hazardous, upon payment of such advance in the prem. above mentioned, as shall be adequate to the hazard and agreeable to the nature of the cases respectively." Clause 12 relates to assu. for a term of years; and 13 to joint lives. Clause 14 contains the agreement between the parties to estab. the So.; and 15 the covenant of the members to make satisfaction to claimants; and (16) to conform to the articles therein contained.

The necessary form to be gone through in order to obtain an ins. in the So. is explained as follows:

17. That every person desirous of making assu. with the said So. shall sign or execute a declaration in writing (in the presence of two credible witnesses, who shall attest the same), setting forth the age, state of health, profession, occupation, and other circumstances attending the person or persons whose life or lives shall be proposed to be assured; which declaration shall be the basis of the contract between the said So. and the person desiring to make assu. with them: in which declaration, if any artful, false, or fraudulent representation shall be used, and the same shall at any time thereafter be discovered, from thenceforth the sums which shall have been paid to the said So. on account of any assurance so fraudulently obtained, shall be forfeited to the use of the said So.; and all claims to be made on that behalf shall cease, determine, and be void, to all intents and purposes whatsoever.

[In 1771 it was resolved that one witness should be sufficient.]

It was provided (clause 18) that every person making ins. should become a member, and bear a proportion of any call, and observe regulations present and future.

There were to be 15 directors [each ins. in the sum of £300 or upwards] (clause 19), whereof 1 president and 2 vice presidents. Five to constitute a court of directors (20), and they should (21) conduct the bus. of the So.

Next we have (clause 22) an important provision in case of plague or contagion [during which 3 directors might constitute a court] :

And the said court of directors shall and may, during the continuance of such sickness or contagion (if it shall appear to them that the fund or affairs of the said So. shall require it), *reduce the payments of the several and respective sums of money, which shall become due by reason of the deaths which shall happen in such a time of public calamity, to any sum not less than one-quarter part of what shall have so become due*: and for the remainder of the said sums which shall have so become due, and which shall not then be paid, credit shall be given to the respective claimants, their executors, administrators, and assigns, in the books of the said So.; and the said remainder of the said sums due, together with interest for the same at the rate of 3 p.c. by the year, shall be paid to the said claimants, their executors, administrators, or assigns, as soon as the affairs of the said So. will admit thereof.

There were to be 5 trustees (23), nominated by the directors, and all contracts made by or with the So. and all pol. were to be signed by three of them at least. [In 1793 the number to sign pol. was reduced to *two*.] The trustees and directors were indemnified (24), and their lawful acts to bind all members (25). A weekly court of directors to be held on every Tuesday (afterwards, 1771, altered to Wednesday) in the year for granting pol. and admitting members (26). The directors were to be paid, if they attended at 11 and tarried there during the whole sitting of the court, a sum not exceeding 40s. [altered in 1771 to *five guineas*] among the first 21 directors who arrived at the general courts, and stayed till completion of bus. "And forasmuch as it is reasonably expected that the bus. of the said Society may hereafter be extended into distant parts of the kingdom; for the greater safety of the said So. in such case, and for the case of those living remote from London," etc., etc., there might be directors-extraordinary (28). Any person obtaining a recommendation or testimonial from three of these might be admitted (29). They were to be remunerated (30), and formally appointed (31).

There was to be an actuary appointed during the continuance of the So. (32), who was to attend daily, Sundays excepted (33), and "in a fair and clerk-like hand, method, and manner, keep and write all such books as the future occasions of the So. shall require" (34); and should "enter applications for membership, and of all monies received, and of every other occurrence which shall fall out and come first to his knowledge relating to the affairs and bus. of the said So." (35); also make and enter up the minutes, and observe and perform the directions of the court (36).

37. That the Right Honourable Hugh Lord Willoughby of Parham; the Honourable Coote Molesworth; Sir Richard Glyn, Knight and Baronet; Sir Robert Ladbroke, Knight; John Silvester, and Gwinn Knight, Doctors in Physic; Edward-Rowe Mores, Adam Martin, Robert Dingley, and John Bedford, Esquires; the Rev. William Scater, Master of Arts; Master Deputy Richard Bridgeman; William Bonham and Joseph Scater, Merchants; and Francis Say, Gent., shall be the first and present directors of the said So., and shall continue in their several and respective offices until other fit and proper persons shall be duly chosen in their several and respective rooms, at the times and in manner hereinafter in that behalf particularly directed and appointed.

Of these directors 8 were members of the Charter Fund; of the other 7 only 1 was ins. in the So., viz. Mr. Adam Martin for £100.

The first President was the Rt. Hon. Hugh Lord Willoughby of Parham (38).

Next we see who the actual founders of the So. regarded as its real promoter :

39. And forasmuch as it is reasonably imagined that the bus. of the said So. will with advantage be carried on under the more immediate inspection of the said Edward-Rowe Mores, *to whose great pains and travail is owing the estab. of the said So.*, the said Edward-Rowe Mores shall be and continue a director of the said So. for and during the whole term of his natural life.

40. And as an acknowledgment to the said Edward-Rowe Mores for the part which he hath borne in forming, fixing, and estab. the said So., and in some measure to recompense him for the trouble which he hath already undergone and may undergo hereafter in the affairs thereof, the said Edward-Rowe Mores shall receive of the said So. during the term aforesaid the ann. sum of £100, payable in manner hereinafter mentioned.

The first Actuary was to be "William Mosdell of Southwark, in the Co. of Surrey, Gent.," who was to hold the office during his natural life or good conduct (41). His yearly salary was to be £100 (42), and after there were 300 members another £100, "because it is imagined that the said William Mosdell will, exclusively of his said office of Act., be otherwise serviceable to the said So." (43). The salary soon began to expand; and in 1806 it was increased from £600 to £800 p.a. The salaries or annuities of the Founder and Act. to be retained out of current cash (44).

A series of clauses, 45 to 53 inclusive, relate to election of Directors, President, and Vice Presidents.

There were to be four general courts or meetings of the whole So. in the year, viz. first Thursday in months of March, June, Sept. and Dec. (54). And the courts so assembled to have power to make statutes and bye-laws, rules, orders, and ordinances for the good order of the So., and to alter same; and to determine as to admission of members, rates of prem. to be paid, removal of officers, etc. (55). The first quarterly court or meeting to be held on the first Thursday in Dec. then ensuing (56).

The So. was to charge entrance money to new members, beyond the stamps on the

pol., at the rate of 15s. for each £100 or part of a £100 insured. [Reduced in 1770, and abolished in 1855.]

Then there follow a set of clauses, 58 to 64, relating to the Charter-founders. The first of these recites :

Whereas, in the course of six years now last past, several large sums of money have been expended in the prosecution of the several means whereby this So. hath been estab., which sums of money have been subs., advanced, and paid by Sir Richd. Glynn, Knight and Bart. ; Thomas Pickering, Doctor in Divinity and Rector of St. Sepulchre's, in the City of Lond. ; John Silvester, of Lond., Doctor in Physic ; Edward-Rowe Mores, of Leyton, in the County of Essex, Esquire ; William Bonham, of Lond., Merchant ; William Mosdell, of Southwark, Gent. ; William Sclater, Master of Arts, Rector of Loughton, in the Co. of Essex ; John Redford, Esquire ; Sarah Bonham ; Charles Green Say, Citizen and Stationer of Lond. ; William Mountaine, Fellow of the Royal So. ; Joseph Sclater, of Lond., Druggist ; Elizabeth Mosdell, of Southwark, Spinster ; John Staples, of the parish of St. Botolph without Aldgate, in the City of Lond., Coal-merchant ; Francis Say, Citizen and Upholder, of Lond. ; Henry Trafford, of Lond., Accountant ; Jacob Palmer, of Bermondsey, in the Co. of Surrey, Gent. ; Josiah Wallis, Gent. ; Benjamin Johnson, of Lond., Accountant ; George Bowser, of Lond., Embosser ; and Paul Henry Robinson, of Lond., Merchant ; and have been so subs., advanced, and paid by them, *in confidence and expect., that if the said So. should be estab., they should be recompensed by the said So. for having so advanced and run the hazard of the said sums of money ;* and whereas upon due consideration it appeareth, that the manner of recompensing them for the same, most expedient for the said So., is to apply the said entrance money, so to be paid down by the persons assured, for that purpose ; and whereas after due examination of the several sums subs. and paid, the proportion of each of the said subs. hath been adjusted and settled according to the rate herein-after expressed,

The whole was to be divided in 146 parts or shares [these at £5 each represent £730], of which should be paid to said Glyn 3 ; to said Pickering 7 ; to said Silvester 7 ; to said Mores 23 ; to said Bonham 19 ; to said Mosdell 17 ; to said Sclater 7 ; and so on to the parties named until the entire number of shares was made up. These persons were to become members, or to nominate some other person if their individual lives could not be accepted (61). The Act. to receive entrance money in trust for the persons named and their legal representatives (62 and 63), and the committee to be appointed to check the accounts (64). These clauses, long since repealed, became, as we shall see, the cause of considerable controversy.

All persons applying for membership for any number of years certain less than ten were to deposit 10s. for each £100 to be ins., and proportionably for every sum under £100 ; for whole of life ins. 20s. for every £100 to be insured, and proportionably under £100. This entrance money and prems. to be invested in Government or other good security (65 and 66). [The deposit was dispensed with as early as 1770.]

All pol. were to be forfeited if the premiums remained unpaid for 30 days after time stipulated in pol. for payment thereof (67) ; but pol. might be revived within 3 months if insured in good health, on payment of a fine of 10s. for each £100 ins. [Extended on several subsequent occasions.]

The next is a most important provision ; although it has never been acted upon :

68. That when and as often as it shall appear to a general court of the said So. that the premiums received for the assu. of those lives and survivorships for which the pol. of the said So. shall have been already granted, will not be sufficient to pay the claims made, or liable to be made, upon the said So., in consequence of the decease of those persons whose lives or survivorships shall have been assured by the said So., then the said So. shall, in a gen. court, declare a call, and shall direct to be paid by the members of the said So., in proportion to their several sums assured, such sums of money as shall be necessary to make good the deficiency ; which said sums of money are hereby covenanted and agreed to be paid by each of the members of the said So. ; and if any member or members of the said So. shall refuse or neglect to pay the whole, or any part of the sums so called for, at such time or times, and in such manner, as the said gen. courts shall direct and appoint, then the said So. shall or may, in a gen. court, inflict such reasonable penalty on such defaulter or defaulters, for the sum or sums so by him, her, or them, omitted to be made, as by the said gen. court shall be thought fit and proper ; and if the said sums so called for, or any part thereof, together with the penalty so imposed for the non-payment thereof, shall be behind and unpaid by the space of 20 days after the infliction of such penalty, then, as well the said sums remaining unpaid, as the penalty which shall have been imposed for the non-payment of them, together with lawful int. both for the said sums and penalty, to be computed from the time of the infliction of the said penalty, shall become a charge on, and (if not otherwise satisfied) be deducted out of the deposit made by such defaulter or defaulters at the time when he, she, or they, became a member or members of, or made assu. with, the said So. ; or out of any share, claim, or demand, which he, she, or they, his, her, or their executors, administrators, or assigns, shall or may then, or at any time or times thereafter, have upon or against the said So., by virtue of any pol. of assu., or otherwise howsoever. [This clause was modified by the bye-laws of 1770 ; but its intent and purpose remained the same.]

Then :

69. Provided always, that credit be given in the books of the said So. to all such persons as shall pay the sums so called for ; and that the same shall be repaid, together with int. for the same after the rate of £3 p.c. by the year, to the said persons, their executors, administrators, or assigns, so soon as the affairs of the said So. will admit thereof. Provided also, that no member of the said So., who shall be assu. with the said So. for a single year, shall be rated towards such call in a greater proportion for every £100 assured, than one-sixth part of the sum charged upon any member of the said So., who shall be assured with the said So. for the whole continuance of his or her life, for every £100 so assured.

Members insured for a number of years certain were to contribute two-thirds ; and those who had ins. nominees were to contribute three-fourths. But if the call required a contribution of 10s. for every £100 ins. for a single year ; 45s. for a £100 on a nominee's life, and £3 for a £100 on a member's own life ; then any member paying the same and remitting his or her deposit, may surrender his or her policy, and be discharged from being a member, and from all future payments in respect of having been a member. [The payments entitling persons to renounce membership were reduced in 1770 ; but in other respects the provision remains the same.]

We next come to the provisions relating to bonuses, in the Deed called *dividends* :

70. That when and as often as it shall appear to a gen. court of the said So., that the stock of the said So., arising from premss., is more than sufficient to pay the claims made, or liable to be made, upon the said So. ; then, and so often, the said So. shall, in a gen. court, declare a dividend of the surplus, or of such part thereof as shall, by the said gen. court, be thought and judged convenient, amongst the then members of the said So. who shall be assured with the said So. upon (and for the whole continuance of) their respective lives, in manner and form following (that is to say).

71. The members of the said So. who shall be assu. with the said So. upon (and for the whole continuance of) their respective lives (those who shall have so become members in the then current year, or the then last year preceding, who are hereby declared to be incapable of any dividend, only excepted) shall be divided into classes according to the number of the years of their standing in the said So. ; and those of the said members of the said So. who shall have completed one entire year's standing in the said So. on or before the last day of *December* next preceding the declaration of the said dividend shall constitute the first of the said classes, etc.

As this plan was altered at a very early date, viz. 1770, we need not pursue it further now, except to say that there was a proviso in favour of the subs. already named that they were to rank for one complete year on the 30th Dec. 1762.

It was provided by clause 72 that deposits to be received under clause 42 should be returned on death of members with the sum ins. unless any call remained unpaid.

In the case of claims by death (73), all claimants to produce authentic certificates of the time and place of the death of the person whose life was assu. ; and same to be filed by the Actuary for future reference. The directors had power (74) to grant annu. to persons who held nominee pol. on death of nominees instead of gross sum ins.

The directors to appoint clerks, agents, and servants for carrying on the bus. of the So. , subject to control of general courts.

Then there was this extraordinary restraining clause :

76. *That if any person, being a member of this present So., shall at any time, during his interest in the same, enter into, or become a member of, or directly or indirectly make assu. with any other So. for assu. on lives, which in imitation of this present So. may hereafter be set up and estab. by others, the interest of such persons in this present So., and all claim to be made on that behalf by such person, or by his or her executors, administrators, or assigns, shall cease, determine, and be void.*

This was repealed on the 16 April, 1772, and this resolution added : "That any person who may be affected by that clause shall be entitled to the assu. notwithstanding such clause was in force when the assu. was made."

Then :

That if at any time hereafter, application shall be made to the Crown for a charter to incorp. this So., this present deed or instrument shall be the plan and basis of such charter, and all and every the clauses, articles, provisos, conditions and agreements, in this said deed or instrument contained (those only excepted which by reason of the death or removal of any person therein mentioned must necessarily be changed), shall be the clauses, articles, provisos, and conditions, proposed, presented, and offered to be inserted therein.

All questions, disputes, and differences were to be decided by reference to His Majesty's Attorney-General and Solicitor-General and the senior King's Counsel practising in His Majesty's Court of King's Bench for the time being, upon a case submitted in writing ; costs to be paid by party losing (78).

The concluding clause (79) binds all persons taking pol. or becoming contributories to the So. to obey constitutions, laws, rules, or ordinances, present and future.

The Deed is dated 7 Sept. 1762 ; and in 1765—Hilary Term, 5 Geo. III.—it was duly enrolled in the Court of King's Bench. Its provisions have in effect been considerably varied by a series of bye-laws, resolutions, and orders of general courts, promulgated under various dates, some of which we have noted in the preceding abstract ; and others we shall notice as we proceed. See also *sub-headings* at close of this art.

Simultaneously with the completion of the Deed, the promoters of the So. issued in pamph. form, from the pen of Mr. Rowe Mores, *A Short Account of the So. for Equitable Assu. on Lives and Survivorships, estab. by Deed enrolled in His Majesty's Court of King's Bench at Westminster*. London : Printed in the year M.DCC.LXII., which was really the prosp. of the So., and wherein, after stating certain general propositions regarding life ins., which will be found in our Hist. of Life Ins. under this date, it is set forth :

These considerations induced a number of gentlemen in the year 1756 to form a design of estab. a so. for equitable assu. upon lives, with a view to the sole benefit of the persons assu., whose interest hath been hitherto considered as wholly distinct from, not to say incompatible with, that of the assurers ; a so. in which the assured being at the same time mutually assurers of one another, the interest of one might be the interest of both ; in which a life might be assu. for a single year, a certain number of years, or for the whole continuance of life ; and in which the premss. of assu. should be no more than adequate to the chance of death, attending the age of life of the assured, and to the time the assu. was to continue.

Their design was received with approbation, and they with unwearied diligence and application, through numerous difficulties and obstacles, have ever since pursued it.

During this time other less comprehensive sos., upon plans indeed something different from this, yet orig. derived from this, have sprung up and flourish.

The promoters, however, of this design, having by perseverance surmounted all obstructions, are at length arrived (at least in this respect) at the completion of their endeavours for the public good, the estab. of a *Society for Equitable Assu. on Lives and Survivorships* ; the fundamental parts of the constitution of which So. are these :—

1. *That in the same manner as in the Hand-in-Hand and Union Assu. Offices of houses and goods from fire, so in the So. for Equitable Assu. on Lives and Survivorships, the assured are mutually assurers one to the other.*

2. *The premss. of assu. are proportionate to the chance of death attending the age of the life to be assured.*

3. A life may be assu. for a single year, a certain number of years, or for the whole continuance of life, upon payment of premis. proportionate to the hazard of the age at which the life begins to be assu., and to the time the assu. is to continue.

Then follows this interesting announcement :

The value of the premis. are ascertained by calculations formed upon the B. of Mort. of Lond., and confirmed by experiments made afterwards upon several bodies of men, which by Act of Parl. or Charter have perpetual succession, and in which the vacancies happening by death are filled up ann. Agreeably to which

The sum of £100 will be assured—

		Increased in 1764 to
	£ s. d.	£ s. d.
Upon the life of any healthy boy of the age of 8 years, for a single year, upon payment of a prem. of ...	1 10 6	1 15 6
For the whole continuance of such a life upon payment of an ann. prem. of ...	2 4 10	2 6 4
Upon the life of any healthy boy of the age of 14 years, whose occupation shall not be hazardous, for a single year, upon payment of a prem. of ...	1 11 9	1 16 9
For the whole continuance of such a life upon payment of an ann. prem. of ...	2 7 7	2 9 1
Upon the life of any healthy boy of the age of 20 years, whose occupation shall not be hazardous, for a single year, upon payment of a prem. of ...	1 15 6	2 0 6
For the whole continuance of such a life upon payment of an ann. prem. of ...	2 15 4	2 16 10
Upon the life of any healthy man of the age of 30 years, whose occupation shall not be hazardous, for a single year, upon payment of a prem. of ...	2 4 6	2 9 6
For the whole continuance of such a life upon payment of an ann. prem. of ...	3 12 3	3 13 9
Upon the life of any healthy man of the age of 40 years, whose occupation shall not be hazardous, for a single year, upon payment of a prem. of ...	3 2 0	3 7 0
For the whole continuance of such a life upon payment of an ann. prem. of ...	4 12 2	4 13 8
Upon the life of any healthy man or woman of the age of 50 years, whose respective occupations shall not be hazardous, for a single year, upon payment of a prem. of ...	4 8 3	4 13 8
For the whole continuance of such a life upon payment of an ann. prem. of ...	5 18 4	5 19 10
Upon the life of any healthy man or woman of the age of 60 years, whose respective occupations shall not be hazardous, for a single year, upon payment of a prem. of ...	6 4 10	6 9 10
For the whole continuance of such a life upon payment of an ann. prem. of ...	8 5 2	8 6 8
Upon the life of any healthy man or woman of the age of 67 years, whose respective occupations shall not be hazardous, for a single year, upon payment of a prem. of ...	7 18 1	8 3 1
For the whole continuance of such a life upon payment of an ann. prem. of ...	11 18 8	12 0 2

And according to the intermediate chance of death for any age between those periods ; and proportionably for any sum either greater or less than the sum before mentioned.

The premis. in the first col. are the same as those given in the clauses 2 to 9 of the D. of Sett. The prosp. continued : "The lives of girls, and of women under 50 years of age, and of men whose occupations are hazardous, may be assured upon payment of such advance in the premis. as shall be judged adequate to the hazard." Also, "The joint lives of any persons, or the survivorship of one life beyond another, may be assured upon terms equally just and reasonable : but the very great variety, as well of these cases, as of the assu. of lives of different ages for a number of years certain, renders it impossible in so short a compass to give any satisfactory account of those terms to the public."

The General Regulations were as follows :

4. Every person desiring to make an assu. with the So. must sign a declaration, setting forth the age, state of health, profession, occupation, and other circumstances of the persons whose lives are proposed to be assured. This declaration is the basis of the contract between the So. and the person desiring to make such assu. ; and if any artful, false, or fraudulent representation shall be used therein, all claim on account of any pol. so fraudulently obtained shall cease, determine, and be void.

5. Every person making assu. with the So. becomes a member of the So., and enters into a covenant, that he will so continue during the term of his assu. ; and that he will conform to, observe, and keep the bye-laws, rules, orders, and ordinances of the So.

6. No person can make assu. upon the life, unless he make it appear to the court of directors of the So. that he hath an interest in the life of such other person at least equal to the sum which he proposes to assure.

17. Four gen. courts of the So. are held in each year, and as many more as the President, either of the Vice Presidents, or any 5 of the directors, shall think necessary. At these courts are exhibited accounts of the state of the affairs of the So., and bye-laws, rules, orders, and ordin. made for the good

gov. thereof: but such bye-laws, rules, orders, or ordin. are not binding until they have received the approbation of two successive gen. courts of the So., whether quarterly or extraordinary.

18. The prems. of assu. paid by the members of the So. (as often as they amount to £100) are vested in the public funds, and there remain to pay such claims as, upon the deaths of the members, shall be made upon the So.

19. If any prem. remain unpaid 30 days after the time stipulated in the pol. for payment thereof, such pol. becomes void; but if the defaulter shall, within 3 calendar months after the time so stipulated (the person on whose life the assu. was made being then alive and in good health), pay the said prem., together with the add. sum of 10s. for every £100 assu. by such policy, then such policy is revived, and continues in force to all intents and purposes whatsoever.

23. All claimants upon the So. must produce authentic certificates of the time and place of the death of the persons under whom they claim.

24. The books of the So. are open to the inspection of any member of the So. for life or years at any court or meeting of the So. without fee or reward.

Lastly. If any difficulty, doubt, or controversy shall at any time arise in the So. touching the management or concerns thereof, the matters in dispute are left to the decision of His Majesty's Attorney-Gen. and Sol.-Gen. and the senior of the King's Counsel practising in the Court of King's Bench for the time being; the opinions of the major part of whom, on a case fairly stated and laid before each of them, is final in determining the same.

A weekly meeting of the court of directors is held every Tuesday at 11 o'clock in the forenoon, at the house of the So. in St. Nicholas Lane, Lombard Street, for the admission of members and granting pol. The constant attendance is there likewise given by the Act. of the So.

Then there is the following special notification:

No person residing within the city of Lond., or within 10 miles thereof, is permitted to appear at the weekly meeting of the court of directors, who shall not at least 6 days before have made known to the Act. his intention of becoming a member of the So.: unless such person shall be personally known to one of the directors who shall be present at the time of his application to the court; or unless he be introduced to the court of directors by a member of the So.

This is signed "William Mosdell, Actuary."

We have in this summary omitted all such regulations as had been specifically provided for by the D. of Sett.

No other T. of prems. was pub. in the early prosp. than that which we have given. Mr. Dodson had, as we know, prepared a T. specially for the So., but he had died in 1757; and as the compensation he was to receive had, as we have seen, been otherwise applied, his executors refused to give up the T. without remuneration. Finally a resolution was put on the minutes of the So. for giving £300 to the children of Mr. Dodson, as a recompense for the T., and it was procured on 24 Jan. 1764. In the mean time the directors had relied upon Mr. Mores to fix the rates; and we assume he either prepared or caused to be prepared those already quoted, and which we now know to have been lower than those proposed by Mr. Dodson.

The first weekly meeting of the directors for the acceptance of lives was—probably pending the preparation of the offices in Nicholas Lane—held at the *White Lion*, Cornhill, when only 4 ins. were completed,—the first on the life of Mr. E. Rowe Mores,—and in the course of the first 4 months the whole ins. effected did not exceed 30, their aggregate amount being for £5100, making an average £170 p. pol. Mr. William Morgan, in his *View*, etc., considers that the failure to obtain the charter had a considerable influence, not only in retarding the estab. of the So., but in lessening the number of its early members. He says further thereon:

This tardy progress of the So. induced the man. to adopt the unworthy expedient of giving it the appearance at least of a more rapid advance, by raising the number of the 25th pol. to 275, and thus leading the public to believe that it consisted of 250 members more than their real number. In add. to this, another expedient, equally dishonourable, was adopted for the like purpose of adding to the importance of the So., by holding forth, with their permission, the names of Lord Willoughby de Parham and others as directors, who had not the least interest or concern in its affairs; and at the end of two years, when it was prob. deceit was deemed no longer necessary, thanks were absolutely voted to Lord Willoughby for the use of his name in sustaining the reputation of the So. 1

At a gen. meeting of the subs. to the expenses fund, held 19 Oct. 1762, it was *Resolved* that from and after that time instead of 15s. no more than 5s. should be paid by insurers for entrance money; but that the So. would for the future charge such advance in the prems. as would enable the said So. to pay to the subs. for every £100, and for any sum over, assured for the whole continuance of life, or for any number of years more than 1, the sum of 10s.; and for every £100 or upwards ins. for 1 year, they would charge such advance in the prems. as would enable the So. to pay the subs. the sum of 5s. This was confirmed on 26 Oct. It was then that the skip was made in the docquet book from No. 24 to No. 275. At this date also 37 *Deposits* had been received, but these were all returned.

On the 14 Dec. 1762, Mr. Mores being in the chair, and there being present 6 directors, the following Oath of Secrecy was prepared, approved, and taken by Mr. Mores, and by him administered to the other directors present: *I — do swear that I will not disclose or make known to any person whatever, except to a director, member, or officer of this So., who shall have first taken this oath, the name or names of any person or persons who shall be assured by this So. (my own name only excepted), nor any matter or thing which shall be transacted in any court of directors, or gen. court of this So., touching or concerning any assu. which shall be made or proposed to be made by the So. So help me God.*

1763.—A set of "Statutes" or bye-laws were drawn up by Mr. Mores, and printed; but they never became legally enacted. They have, notwithstanding this circumstance, a value, as well as considerable interest: for they illustrate points in practice at that period.

They were voluminous, extending over some 48 pages of print, 12mo.; and we suspect may have been designed to supersede the orig. D. of Sett. From them we make the following selection.

The 1st chap. treats of *Admission of Members*. In add. to the special notification of 1762, any member introducing a person with a view to insuring was to "satisfy the court that the person so introduced is, as well with regard to himself, as to the life which he proposes to assure, in every respect fit to be admitted a member of the So." Then the following :

As it may happen that objections against particular persons may sometimes be known to one or more of the directors who shall be present at that weekly meeting of the court of directors of the So., at which such person shall be proposed to be admitted into, or at which the lives of such persons shall be proposed to be assu. by the So., which objections it may nevertheless be improper openly to declare; therefore no one shall be admitted a member of the So. nor any assu. be made but by the unanimous vote of the weekly meeting of the court of directors of the So.

Finally :

When any one appeareth before the weekly meeting of the court of directors in order to make assu. with the So. after the declaration shall have been read and the party shall be withdrawn, according as the desire of the party shall be signified in his declaration, the question shall be put :—1. *Whether the party shall be permitted to make assu. with the So. upon and for the whole continuance of his own life?* And if the same pass in the negative, then,—2. *Whether, etc., for a number of years certain?* And if the same pass in the negative, then,—3. *Whether, etc., for a single year?* And if the same likewise pass in the negative, so that the party is entirely rejected, the Act. shall signify to him the determination of the court.

Otherwise, when the prem. shall have been fixed, the party shall be again called in, and the person presiding shall declare to him the resolution of the court; and if he agrees to the terms offered on the part of the So., after he shall have paid the prem. and shall have executed the covenant usually entered into by members of the So., the person presiding shall, in the name of the court, admit him a member of the So. in one of the forms following, viz. : If the party make assu. upon and for the whole continuance of his own life, "*We admit you a member of the So. for Equitable Assu., etc.; and we wish you a long and happy life.*" But if the assu. be other than for the continuance of the party's own life, the latter part of the said form shall be omitted. And if the party appear by attorney, "*We admit, in the person of you, his attorney, A. B. of etc. a member, etc.*"

It appears that the "exceptions" that were to be in the pol. were also to be stated.

Chap. 2 treated *Of the Pol. of the So.* There is nothing calling for special mention here. The practice of keeping "*Docquets*" of all pol. was adopted at the commencement of the So., and is still continued. We shall speak of it under the sub-heading *Docquets* in a later part of this art.

Chap. 3 treated *Of Prems. of Assu.*, and gave the first complete T. of prems. pub. by the So., still, however, not arranged in tabular form. These T. will be given in a combined form under sub-heading *Premiums*.

Chap. 4 treated *Of the Sums in which Assu. may be made with the So.*, and contained the following :

For the accommodation of many persons whose situation and circumstances may not require so large a sum as £100 to be assu. upon their lives (which sum has all along been made the standard for regulating the prems. of assu. to be taken by the So.), the So. will make assu. in any sum not less than £20.

And although it is imagined that the sum of £500 or less will satisfy the occasions of those persons for whose benefit the So. is primarily calculated; yet it is not intended to exclude those who may be desirous of making assu. in a larger sum: but every person who shall insure upon a single life a greater sum than £500, or who shall desire to make assu. on a life already assured to the amount of £500 (except in the cases of survivorship), shall pay an advance in the prem. of assu. for all such sums as he shall assure greater than £500, according to the rate hereafter expressed; that is to say—for 600 an advance or additament of 20s. [and a like add. of 20s. for each £100 add. ins. up to £2000, "and so on proportionally."]

Chap. 5 treated *Of Credit to be given to the Members of the So.*, and contained the following proposed regulations :

If any member of the So. shall, through unforeseen misfortunes, be rendered unable to continue the payment of his prem., in default of which the claim [pol.] must necessarily cease, and the sum assured be lost to his family, the So. shall at his request give annually credit to such member for his prem., and shall deduct the same, with interest at the rate of 3 p.c., out of the claims which shall become due on the pol. of such member at the time when that claim shall be paid.

But as this indulgence may be the cause of much add. trouble to the So., no one shall be entitled to it but a member assured upon (and for the whole continuance of) his own life; and who shall have been a member of the So. so assured for the space of — years at the time when such request was made.

We find no trace of this regulation having ever been acted upon.

Chap. 6 treated *Of the Deposits, and Entrance Money*. This subject will be treated in detail under the sub-headings *Deposit Money* and *Entrance Money*.

Chap. 7—*Of the Courts or Meetings of the So.*, in which was contained several excellent suggestions :

At the courts or meetings of the So., so soon as the person who, according to the estab. rules of the So., is to preside at such court or meeting, shall have taken the chair, the rest shall place themselves orderly and conveniently for the bus. of the meeting; and no person shall depart during the sitting of the court without the licence of the person presiding.

When any one speaketh, he shall address his speech to the person presiding, and the rest shall be silent. When two or more offer to speak, the person presiding shall determine which of them shall speak first. No one shall, either by whispering, or noise, or otherwise, disturb another who is speaking; but let every one deliver his sentiments upon the matter proposed, in order, and without interruption. . . .

And if any director or member of the So. shall depart during the sitting of the court, not leaving behind him a sufficient number to constitute the court, *he shall be for ever after disqualified to be chosen a director of the So.* . . .

Upon every gen. court day the messenger of the So. shall attend at the door of the place where the court shall be held, from the time of opening the same until the court shall be adjourned, and shall take effectual care that no person gain admittance who has not the right to vote or be present at such court.

Chap. 8 treated *Of the Making and Repealing of Bye-Laws*. There is nothing calling for special note here.

Chap. 9 dealt with *The Method of Voting*, and proposed to provide that in all elections, and in the making or repealing of bye-laws, and in all other questions of moment, the votes shall be taken silently and secretly by way of ballot."

Chap. 10—*Of the Election of Directors of the So.*, and is very full. We take but one passage :

For the election of directors there shall be a competent number of lists printed of all the members of the So. eligible to that office, in an alphabetical order, save that the names of the directors of the then present year shall stand at the head of such list ; and the said lists shall be distributed to every member having a right to vote at such election.

Chap. 11—*Of the President*. "Let the President be one who for his affection to the So., and his ability and readiness to advance the same, shall be most fit to be chosen to that office."

Chap. 12—*Of the Vice Presidents*. Nothing special.

Chap. 13—*Of the Charge to be given to the Directors of the So.* At the first weekly meeting of the Court of Directors of the So., "whereat any persons newly elected into the number of directors shall be present, a charge shall be delivered to them in the form following :

"Ye shall promise that ye will truly and faithfully discharge the office of directors of this So., and according to your ability will endeavour that its honour be preserved, its welfare promoted, and its bye-laws, rules, orders, and ordinances without fraud observed. That ye will not through favour or affection procure or attempt to procure, or knowingly suffer another to procure, any assu. to be made by, or in the name of this So., upon a life whereof any circumstances affecting the safety of the So. shall to your knowledge be concealed or partially related. That ye will neither through intreaty, favour, or affection, admit or partially suffer any person to be admitted a member of the So. upon (and for the whole continuance of) his own life of whom ye have any cause to suspect that he will prove an unworthy member thereof ; nor through ill-will, malice, or disfavour, without any other motive, oppose the admission of any one ; but with fidelity and justice, as becometh good men, laying aside all affection and partiality, perform your duty, and diligently and cheerfully act all things for the honest profit, emolument, and advancement of this So. All this ye shall give your faith to perform."

The charge was to be delivered by the President, Vice President, or Senior Director.

Chap. 14—*Of the Trustees of the So.* "Let the Trustees be such as are most fit and proper to be elected and chosen into that office. And let them be resident within the City of Lond. or the suburbs thereof, or at least within — miles of the Royal Exchange."

Chap. 15—*Of the Actuary*, here is the following :

Although provision hath been heretofore made that for certain wise and good reasons the Act. should be chosen out of the members of the So. ; yet as the transaction of the bus. of the So. will in many cases require the attestation of a legal witness, which a member of the So. cannot be, every person who shall be chosen to that office shall surrender up and resign his pol., and cease to be a member of the So., unless the gen. court or meeting of the So. at which he shall be chosen shall resolve otherwise.

And every person who shall be chosen to the said office, immediately after his election to the same, and before he enters upon the execution thereof, shall in the face of that court, at which he shall have been elected, make and subs. the declaration following :

"I A. B. having been elected and chosen into the office of Act. of the So. for, etc., do declare and promise, that, during so long time as I shall continue to exercise that office, I will exactly and regularly keep all and every the books and accounts of the said So., not making any entry therein which ought not to be made, nor omitting anything which ought to be recorded therein ; and that I will duly enter all such sums of money as shall be received or paid by me (or by any other person by my order or with my privacy) for the use of the said So., and will not conceal the same, or any part thereof, from the trustees or from the court of directors of the said So. ; and that I will carefully and diligently attend to the execution of the said office, and will truly and faithfully discharge the same and every part of the duty thereunto appertaining, according to the utmost of my abilities and power." Which declaration so made and subs. shall be entered in the minutes of the proceedings of the said court.

And every person who shall be chosen into the said office of Act. shall immediately after his election to the same, and before he enters upon the execution of the said office, give sufficient security to the trustees of the So. as well for such sums of money as may come to his hands, as against embezzling, purloining, or destroying any books, papers, or writings belonging to the So.

Chap. 16—*Of the Messenger*. "Let the messenger be an honest and a trusty person, and such an one as will demean himself soberly, and will diligently and faithfully serve in the bus. of the So. without fraud or guile. And his office shall be to attend at the courts or meetings of the So., and to do and perform such things as shall then and there be given him in charge."

Chap 17—*Of the Oath of Secrecy*, there were the following regulations :

Forasmuch as it is certain that no Society can be by any means more surely established than by wise regulations and the sage and prudent conduct of those who are entrusted with the administration and management ; and because in many cases it is indispensably necessary that inviolable secrecy be observed, and secured to those who shall make assu. with the So. : It is ordained and ordered that every director of the So. at the time when he taketh upon himself the exercise of his office ; and every member of the So. before he is permitted to be present at the gen. court ; and every act., clerk, agent, and servant of the So., before they enter upon the execution of their respective offices ; shall at some court or meeting of the So. be enoerated with the following oath : "You shall swear that you will not reveal the secrets of this So. ; and that you will not disclose or make known to any person whatever, except to a director, member, or officer of this So. who shall

"first have taken this oath, the name or names of any person or persons whose lives shall be assu. by this So. (your own name only excepted). Nor any matter or thing which shall be transacted or done in any court of directors or gen. court of this So., touching or concerning any assu. which shall be made, or proposed to be made by this So. *So help you God.*"

And if any person shall be found guilty of a breach of this oath, if he be a director or member of the So., he shall hereafter be incapable of being chosen a director, and shall be for ever excluded from all court meetings of the So. And if the offender be Act. or a clerk, agent or servant of the So., he shall be forthwith discharged from his office, and from all future employment in the bus. of the So.

Chap. 18—*Of the Seal and Deeds.* The seal was to be kept in a chest, secured by three different locks, the keys whereof were to be kept by the President, Vice President, and Trustees. All deeds were to be sealed at courts of directors duly convened.

Chap. 19—*Of the Management of the Estate of the So.* Minute directions were laid down as to the ordering and payment of moneys; and by whom and on whose order they should be paid.

Chap. 20—*Of the Report of the Directors.* A general report of the progress of the So., and of its cash, and claims, etc., was to be submitted at each quarterly court.

Chap. 21—*Of the Books of the So.* Consisting of regulations for the safe custody and inspection of the same.

Chap. 22—*Of the Payment of Claims.* It was here proposed to make the period of payment 3 months after death if that should happen after first year of membership.

And all those who shall be claimants, upon the decease of any person dying out of that part of Gt. Brit. called Eng., shall give sufficient security to indemnify the trustees of the So. against any future demand.

As we have said, we find no evidence of these stat. or bye-laws ever having come into force;—no formal alteration in the constitution of the So. being made until 1770; but many of the provisions here laid down were doubtless incorp. into the practice of the So., and furnish evidence of the high principle upon which the affairs of the So. were from the first assumed to be conducted. The practice, however in these early days did not emulate the theory.

1764.—On the 6th Jan. a meeting of the committee of the subs. to the Charter Fund, and to the later subs. for the Deed, etc., of the So., was held at the office of the So. The Treasurer exhibited the state of the subscribers' accounts up to 7th Sept. 1762, whereby it appeared that there had been subscribed by 55 subs. at 5s., £13 15s.; by 41 other subs., mostly in sums of £15, £590; and by 17 further subs., £295: making a total of £898 15s. —of which, however, it was said, considerable sums had not been actually received. The payments out had been £715 11s. 9d., made up of the following items: Mr. Barnard, sol., £72 13s.; Dr. Brackenridge, £5; Book of the B. of Mort., 6s. 6d.; to Francis Rowden, £56 9s. 5d.; to Mr. Mores for his expenses, £10; Mr. Jenkinson's bill, £14 14s.; to copying sundry writings, £3 3s.; counsel's fees, £11 11s.; to Mr. Greenland, sol., £371 1s. 6d.; to Mr. Say, printer, £28 17s.; to sundry incident charges during the 6 years' prosecution of the design, £141 11s. 4d. There was consequently a bal. in hands of Treasurer of £165 1s. 3d., less the sub. not actually received. Regarding the £5 shares provided for by the Deed, the orig. number had been 177 [in the Deed by mistake called 144]; they were now reduced to 149.

At a further meeting of the same body held 17th Jan., the account from 7th Sept. 1762, to 31st Dec. 1763, was produced. The amount which would have been received on 182 ins. made upon 161 lives was stated to be £293 5s. [we do not see how this is made up], but in consequence of the meetings of Oct. 1762 having reduced the fee to 5s., the sum of £282 17s. 6d. only had actually been received.

The immediate result of the obtaining Mr. Dodson's T. in Jan. of this year was that the rates were increased, as we have shown in the second col. of preceding scale. It appears to have been considered that this increase was made in consequence of the dictum of the Attorney-Gen. on the hearing of evidence for and against the orig. petition: "I do not think the terms are sufficiently high to justify me in advising the Crown to grant a charter." This can hardly have been so; because if any serious value was attached to this remark, it should have been regarded in compiling the first pub. scale of rates (1762). We shall see hereafter that it became a charge against the actual founders of the So., i.e. the Charter Fund Proprietors, that they adopted a lower scale of prems. than had been orig. contemplated, in order to draw in insurers. When Mr. Dodson's scale came before the board, the increase we now speak of may have been made by way of compromise between the two sections of the board.

We have seen that Mr. Mosdell was appointed the Act. of the So. by the D. of Sett. It appears that he was in fact only an accountant. He died in the latter part of 1764; and his successor was Mr. James Dodson, a son of the projector. He, the son, had not the mathematical learning of his father. He was indeed but just 21 when appointed; and Prof. De Morgan considers that the appointment was intended as an acknowledgment of his father's services. It may have released some financial obligation of the So. Upon obtaining a situation in the Customs House more suited to his abilities, Mr. Dodson, Jun., resigned, in April, 1767, when Mr. John Edwards was appointed to the office.

Mr. Mores offered to officiate as Actuary during the vacancy occasioned by the death of Mr. Mosdell.

In 1764 also there was pub. the 5th ed. of *A Short Account*, etc., of the So., which

appears indeed to have been used as a sort of enlarged prosp., or perhaps indeed the only one. From this ed. we learn something of the manner in which the So. had been regarded by the public, as also of the means which it took to secure the confidence of persons seeking insurance. After stating generally the objects and purposes of L. Ins., and how these might be applied, it proceeds :

But it hath been found by experience that a future provision for a family is, in the opinion of the generality of these persons, *of less importance than a provision for themselves in sickness or old age, or at a time when they shall be disabled from labour*; which kind of provision has been eagerly inquired after here; it seems necessary to show that the primary intent of the So., although directed towards a very different end, may yet be made subservient to these salutary purposes.

Every member of the So. assured for the whole continuance of his own life, from the instant of his admission into the So., has a rateable interest in the claims which will become due at his death; and this interest increases in value yearly, till at the extremity of life it amounts to the sum assured: therefore if, through unforeseen misfortunes, any of these persons who shall be assured with the So. should stand themselves in need of that assistance which was intended for their surviving families, they will easily find a purchaser for their interest in the claim; and that at a price so much greater, as they themselves shall at the time of alienation be more and more advanced in years. And in order to defeat any sinister views, and to prevent those unfair advantages which under such circumstances an avaricious purchaser might be apt to take, it hath ever been intended that the So. itself shall, upon application, become the purchasers; who, exclusively of the natural regard due to their own members, will for other reasons be willing, and will manifestly be able, to become the purchasers of such an int. at a better price than a stranger.

The mention of this particular serves likewise to obviate another difficulty, which we find has occurred to these persons; namely, that if in the decline of life they should be unable to continue their ann. payments, their claim to the sum assured must cease, and all which they shall have paid before be lost: an incident of which a Society founded in equity hath not been unmindful, although from the smallness of these payments it is thought to be an instance which will very rarely happen: they have nevertheless made a provision in case it should happen, distinct from the expedient which is here alluded to. But this has hitherto been looked upon as a circumstance too trivial to deserve the public notice; and if it should still, as we make no doubt but it will, together with some other particulars contained in this narrative, appear in the same light to people of better judgment, it is hoped that so minute a detail will be imputed wholly to a desire of rendering the nature of our inst. intelligible to the understandings of all men.

Nearly analogous to these objections is another which hath been raised by some of a superior degree, respecting also assu. upon their own lives; to wit, that if the cause of their assu. ceases, the sums they shall have paid will have been paid for nothing: in answer to which it might be sufficient to observe that whilst that cause subsisted, they were made secure by the So., and for that security were those sums paid; and that by the removal of that cause they will either have attained those ends for which they called in aid the assistance of the So., or the occasion which required that assistance will be determined. But as this design is founded on a view to gratify rather than to take advantage of the demand of those who seek its help, so in these cases, which cannot be supposed to have been many yet, the So. have always been and always will be ready so to accommodate their practice to the conveniences of mankind, that no one yet has paid, or will hereafter pay, but through his own neglect, for any benefit which he hath not received. But as applications of this sort can be considered only as petitions for a favour which there is no great right to ask, the So., who at first were judges of the motive for which the assu. was made, will, when any indulgence is expected on this behalf, judge likewise of the sufficiency of the reasons propounded for annulling it.

Then, after an enumeration of the rates of prem., similar to that we have already given, there is this additional note :

But it is to be observed that no advance [of rates] is taken by the So. unless there be a real hazard at the time of assu. Thus *military and seafaring lives*, which upon the whole are more hazardous than common lives, because they are liable at certain times to become more hazardous, are yet assu. while unengaged in the exercise of their profession at the same rate as the life of a common person; but as the prems. of this So. are fitted to our own nation, or to climates not more unhealthy, or abodes not more perilous than our own, the assu. made at these prems. are avoidable if the party whose life is assured shall *die upon the seas*, or beyond the seas without the territories of Europe, or by the exercise of any military duty in the time of war.

The joint lives of any persons, or the survivorship of one life beyond another life or other lives, or of other lives beyond one life, may be assured upon terms equally just and reasonable: but the very great variety as well of these cases, as of the assu. of lives of different ages for a number of years certain, and of diverse other assu. which come within the daily practice of the So., renders it impossible in so short a compass to give any satisfactory account of those terms to the public.

Further :

The time for payment of claims accruing by death is, in case a death happen in the first year, within 6 calendar months after the expiration of that year. But if the life assured survive the first year, then within 6 calendar months after proof of the death shall have been made according to the rules and practice of the So. These limitations are confined to gross sums only. In post-obit annu., which are paid half-yearly, if the failure happen in the first year, the annu. commences from the 2nd day of payment next ensuing the decease. But if the failure happen not till after the expiration of the first year, the annu. then commences from the first day of payment then next ensuing: in both cases proof of the decease and claim having been made in manner before mentioned. This is the general usage of the So., and these circumstances are connected with their calculations. Yet the custom is not so invariable but that it is sometimes altered, particular occasions so requiring. But it is to be observed, that a variation in these terms is necessarily attended with a variation in the calculations likewise.

Finally :

Whereas frequent applications are made at the house of the So. relating to annu., rev., survivorships, and other estates depending upon or determinable with lives, with a seeming view to assu. intended to be made with the So.; and for want of sufficient knowledge of the purpose of the inquirer incorrect and unfit answers are sometimes given: it is wished that in all inquiries of this nature which may be made hereafter, the real motive of those inquiries may be declared with less reserve; as an endeavour to mislead on the one part is so liable to be attended with misinformation on the other.

Appended to this ed. was the set of proposed "Statutes" which we have quoted under 1763.

1765.—By a resolution of 9 Oct. 1765, the prems. were increased $1\frac{1}{4}$ p.c. on all lives

under 30; on all military persons, and persons not appearing for inspection. This was the second increase—the first having been made in the preceding year.

In a case drawn up on behalf of the So. and submitted to counsel at the close of 1767 we find the following remarkable passages :

The terms of ins. in the first instance, as first fixed by the deed, on lives under 30, are from £1 15s. 6d. to £2 9s. 6d. So that even with the entrance-money, the premiums upon an average did not amount to 3 p.c., and they were supposed to be set so low to make room for the exorbitant add. made for the benefit of the Charter Fund Proprietors.

Several of the directors (Charter Fund Proprietors and others) plainly seeing that the So. must be ruined if the premiums were not increased, and it being in the then state of the Co. thought dangerous to apply to a gen. court for that purpose, it was, at two successive summoned courts, holden on the 9th and 16th of Oct. 1765 (consisting chiefly of Charter Fund Proprietors) determined to make an add. to all ins. on lives under 30; on all military persons; and persons not appearing for inspection; though this measure had been, and was then, strenuously opposed by Mr. Mores.

That the low premiums, pub. in the *Short Account* would tempt numbers to ins., and at the same time might make the subscribers less critical and scrupulous as to the lives offering to be ins. (which appeared in many instances to have been the case); and that if such low and inadequate ins. should eventually ruin the So. (which it could scarcely fail of doing); yet that the great numbers ins. would keep the day of bankruptcy at a distance; and that before it could arrive, the subscribers to the Charter Fund might have received £1000 for every 20s. disbursed by them.

The interests of the So. and of the Charter Fund subscribers appearing thus wholly incompatible, it being expedient for the former to insure none but the sober and healthy, and always to receive adequate premiums, and of the subscribers to take any lives, and keep the premiums as low as possible, to induce persons to make ins. . . .

All that need be said of these conflicting statements—drawn up as *facts* to lay before counsel—is that they contained as much truth prob. as *ex parte* statements usually do.

The circumstances connected with the rates of prem. charged by the So. are rendered about as conflicting by various authorities as the statements concerning the first inception of the So. We endeavour to elucidate these statements as we proceed. Under the sub-heading *Premiums*, they will be brought into a condensed, and we trust intelligible form.

1766.—The position of the So. on the 5th Aug. 1766, was as follows. The Charter Fund Proprietors had received £1119, and the So., after paying all claims and debts, had but £734 12s. 1d. cash. The insurances outstanding amounted to £110,000 sums insured. Ins. to the amount of about £40,000 had been lapsed. The Charter Fund Subscribers had at this date advanced £898 15s., of which £823 6s. 11d. had been expended.

On the 13th Nov. 1766, the following proposals were made to the Court on behalf of the Charter Fund Proprietors. 1. To pay immediately to the subs. to the Charter Fund at one payment, £10 per share in full of all demands. 2. Or to pay them 30s. p.a. during their own natural lives. 3. Or pay their representatives £36 for every share in one payment, within a year after his or her death.

On the 25 Nov. 1766, it was ordered that a court of directors be summoned to meet on 3rd Dec. upon bus. relating to the Charter Fund, and that it be mentioned in the letter of summons that this court, finding that the members of the Charter Fund who were then present did not think proper to make their rep., as had been requested of them, *It was proposed to put a stop to all future ins. till the bus. was settled with the members of the Charter Fund, considering that it was inconsistent with the character of men of honour to suffer persons to enter into the So. in its present state*; but it was thought proper that a court of directors should be summoned upon this bus., to take the sense of a full court upon such resolution. At the meeting so called, Mr. Mores proposed that the Charter Fund Proprietors be paid £30 per share in 15 years from that date. Nothing was concluded.

On the 23rd Dec. same year, the rep. of the subscribers to the estab. of the So., dated 19th Dec. inst., was read, in which they objected to all proposals theretofore made, and themselves proposed to accept 40s. p. share p.a. payable quarterly, for 21 years certain, with a proviso that if any of the subs. survived that period they should continue to receive the same quarterly payments during the remainder of the term of their lives. This alteration to take place at the expiration of present year. Nothing concluded.

In 1766 the So. pub., again from the pen of Mr. Rowe Mores, *Precedents of Sundry Instruments relating to the Constitution and Practice of the So.*

1767.—On the 9th Jan. 1767, the court took into consideration the rep. of the subs., and were of opinion that the shares ought not to be valued at more than £20, and that the subs. have their option, either to receive that sum at the expiration of 21 years, with accumulating int. at 4 p.c., or by an annu. for that term. Nothing determined.

On the 10th March Mr. Waller, one of the directors, protested as follows :

As I consider that the dispute about the Charter Fund has drawn Dr. Silvester out of the So., has made Sir Richard Glyn and Roger Staples, Esq., refuse to execute any pol., and I myself have absented myself from the Tuesday's meetings, not thinking it justifiable to draw in persons to make ins. with us, while a dispute which I think threatens the dissolution of the So. is now farther from being settled than when it began; as I consider that several members of the Charter Fund are disposing of their shares, which must involve the So. in lawsuits with the purchasers, while this fund is industriously concealed from every new member, and the disputes about it much more so; as I consider that the members of the Charter Fund always compose a great majority of the court of directors, I think myself bound in honour and conscience to protest against admitting any new members into the So. till the dangerous disputes about the Charter Fund are settled; as it can answer no end but enriching that Fund at the expense of the new members.

At a court held 1st May it was resolved, "That it be reported to the next gen. court that it is our unanimous opinion that it is for the interest of the So. to pay to the Charter Fund Proprietors, or their executors or assigns, 40s. p. share p.a. during the term of 14 years from Christmas last in full of all claims or demands upon the So. on account of entrance money, and that the said annu. be paid half-yearly."

The gen. court of May 5 empowered the directors to settle on these terms; but no settlement was then arrived at.

At a summoned court of directors held 23 June, 1767, a cheque was drawn for £140 for half-year's annu. to Charter Fund Proprietors, although the arrangement had not been concluded. This circumstance led to an account of all moneys paid to the Charter Fund Proprietors up to that date being prepared. The payments were: to 31st Dec. 1764, £648 3s.; to 31 Dec. 1765, £374 16s. 3d.; to midsummer, 1766, £96 11s. 1d.; to Christmas, 1766, £159 12s. 6d. Total to that time, £1279 2s. 10d. Half-year's annu. to midsummer, 1767, £140; ditto to Christmas, afterwards paid, £140. Grand total, £1559 2s. 10d.

The 7th ed. of *A Short Account*, etc., was printed in 1767; also, *The Plan and Substance of the D. of Sett.*; and *The Statutes*. These were all from the pen of Mr. Mores.

1768.—On 23 June, 1768, a Committee was appointed "to examine into all matters and facts relative to the creation and present state of the Charter Fund." This committee presented its report dated 26 July, 1768, to the court. The court handed the same to a solicitor as instructions for him to draw a case to place before counsel. It has thus come to be preserved in the British Museum, with the case and the opinion of counsel; and from it we have drawn some of the facts already stated. We proceed as nearly as may be in the chronological order of the facts.

Before the case was presented to counsel, Dr. Silvester, a director, drew up a "Protest" against it, under date 29 Nov. 1768, wherein he says:

In consequence of the resolution of the court of directors of the 24th inst., Mr. Cruttenden [the sol. employed by the Co. to prepare the case] was so obliging as to call upon me that afternoon and show me the alterations which had been made in the case which was to be laid before counsel; but as notwithstanding these alterations the case appears to me very defective in the historical part, and susceptible of a wrong interpretation in many places, . . . I thought that in justice to my trust, I could not agree to its being laid before counsel, but only upon condition that Mr. Cruttenden should acquaint him that some of these points were still litigated, and that the said account could not with any degree of propriety be depended upon; and that he should desire counsel so to give his opinion at large that it might appear on what part of the case it was rested, in hopes that if it was grounded on incontrovertible points, we should all abide by his opinion; or if it depended upon such allegations, or those calculations which were not fully proved, and therefore not yet admitted on all sides, these should be discussed immediately and settled so as to make another case to be laid before him with all convenient speed. . . .

This protest does not appear to have been heeded—Dr. Silvester being one of the Charter Fund Proprietors. The case was laid before counsel, and the result was entirely against the Charter Fund Proprietors. When the opinion of counsel was read before the court of directors, the majority of the directors who were Charter Fund Proprietors declared the case was not a fair one, and demanded that a new case be drawn and another opinion taken. This brought the dispute, which had for several years existed between the two sections of the board, into a more personal form; and the directors who were not Charter Fund Proprietors prepared a "Protest,"—Mr. Waller in fact prepared it, but four of the others indorsed it,—from which we take the following passages:

As I have ever been desirous of knowing what the gentlemen of the Charter Fund have to say in support of their claim, or in opposition to what the directors—who are the proprietors of this Fund—allege against it, I was willing to follow the gentlemen in these minutes, and took the same accordingly as they were mentioned by Dr. Silvester. . . .

If the case which cost so much time in preparing and settling was to be opened at the request of these three members, the bus. which has already been 4 years in agitation, would take up at least as many more, as any other members of the Charter Fund who are not directors would have the same right to open any other settled case at their pleasure. . . .

In these debates the Charter Fund Proprietors must carry the question as they please, as Mr. Staples and Mr. Travis never attend, and 7 out of the remaining 13 directors are interested in the said Fund. . . .

Lastly. The bus. of the So. has been so neglected by the time that has been spent ever since the separate interest of the Charter Fund has been discovered, in the disputes among the directors, that many gentlemen besides myself think the So. must be ruined if an immediate stop is not put to such disputes. For I need not remind the Court that *the preparing proper T. for ins. on joint lives and survivorships*, preparing a case for the opinion of counsel about Mr. Mores' perpetual directorship, and his salary of £100 p.a., the alteration of the entrance money, and the abolition of the deposit, the resolution of a court of directors about the add. to be made to prems. for youth, military occupations, and non-appearance, the number of witnesses to the declarations, the pub. the *Short Account*, and the several necessary alterations to be made in the Deed,—bus. which demands your utmost attention,—has a long time been and still is postponed on account of these disputes with the members of the Charter Fund.

We have seen that most of these questions had been dealt with, but probably not in a formal manner.

In 1768 the So. issued *The D. of Sett. and Declaration of Trust*; also, *A List of the Pol. and other Instruments of the So. as well general as special*. These too were from the pen of Mr. Rowe-Mores. They were the last he wrote for the So. Mr. Mores finally took the side of the Charter Fund Proprietors, of whom he was one of the principal, and separated himself from official connexion with the So.

It was proposed after this event to have a new Deed, and instructions were actually given for the purpose ; but in consequence of the disputes then on hand, the subject was not proceeded with.

The pol. in force at the end of 1768 were 564, the average sum ins. being about £250. But the total pol. granted up to this date had been 1168—consequently at this early period *one-half* the pol. issued had been forfeited, “to the great benefit of the So.,” *vide* Wm. Morgan. [See 1770.]

There was at this period considerable difficulty in procuring a gen. court. There were hardly ever more than 25 members present, “and those often collected by sending round to the neighbouring members.” Sometimes none but the directors were present.

1769.—The protest of Mr. Waller last recited was dated 11th January, 1769, and the reasons assigned by the four other members of the board are dated the same day. In this way was opened up another year’s warfare.

When this protest was read before the next court of directors, other disputes arose, which being determined favourably for the Charter Fund Proprietors, who were in the majority, produced a further protest from several “disinterested members,” from which we draw the following, not without regret, but as essential to our record :

We had not the least doubt on the 11th inst. but the reasons offered in the protest given to the court of that day would have put a stop to the attempt for opening the case, till the Charter Fund Proprietors at large had examined the same, and given their opinion thereon in writing, with answers to the very reasonable questions whether the £5 per share was really advanced and applied, and an account thereof really stated and examined before the execution of the Deed, without which, according to the opinion of Mr. Madocks, the claim of the Charter Fund Proprietors is fraudulent against the Society. But when those proprietors of the Charter Fund who are directors saw that the 5 disinterested members in the direction who concurred in submitting these reasons to them for opposing the present attempt to open the case, added, as a further reason for their opposition, that the very existence of the So. depended on the directors settling without further delay, the very important bus. stated by a long list in the protest, and which had been so long postponed by the disputes with the Charter Fund Proprietors, we were confident the gentlemen would no longer press the present mode of re-examination proposed. We were, however, mistaken.

Dr. Silvester still insisted the discussion, as he called it, should be had in a court of directors. . . . But the Doctor’s method of discussion exceeded even this. He desired the case to be read, and then, taking up the first fact that came in his way, talked upon it as long as he pleased ; then asked if any gentleman could prove it ? And nobody answering, talked upon it again ; then wrote upon a piece of paper, that it was not true, and put it into the hands of Sir Richard Glyn as a motion ; who after it was seconded by Mr. Wallis, put the question, and nobody holding up their hands against it, the Act. was ordered to write in the margin of the case, that the fact was not true. The second fact was treated in the same manner. The Doctor took it up, talked, then asked if anybody had anything to say for or against it. Silence ensued. Then he talked again, makes a motion, Mr. Wallis seconds it, Sir Richard Glyn puts it, the four hold up their hands as before, and the Act. is ordered to clap it down as false ; and after this a third was thus tried, cast, and condemned. Though this ridiculous farce could not fail of making us smile who sat by as idle spectators, we could not but laugh out without reserve when the Doctor insisted, That as we did not hold up our hands against the questions, as he called them, we were to be considered as voting for them, even though he heard us declare our resolution of protesting against this mock discussion, and wished not to be considered as judge, jury, or executioner in his trial of the unfortunate case. About 3 o’clock the Doctor had almost gone through the first of the 16 pages, when all parties seemed disposed to think of their dinner, having lost one at the preceding court upon the same bus., and in this for a few minutes we were unanimous ; but upon an unreasonable motion of Dr. Silvester’s, That it should be the resolution of the court to adjourn the consideration of the case, unanimity ceased ; we were obliged to oppose it before it was put, and when it was carried to declare our intention of protesting against it at the next court.

The court was now open to any question that might be proposed on behalf of the So., but the gentlemen appearing desirous of breaking up, nothing more was proposed by us, but the entering in the minutes the paper [protest] that had been signed by the 4 disinterested proprietors, which was no longer liable to the objection of interfering with the bus. said to be before the court. This, however, was opposed by Sir Richard Glyn, who insisted that it was irregular. We urged the reasonableness and candour, at least, of letting it appear upon the minutes what different parties thought of the affair of the Charter Fund, and desired that we might have the sense of the court, though we did not expect, from what had passed that day, to have a majority in our favour. But, strange as it must appear to any one, as it did to us, Sir Richard Glyn refused to put the question, declaring he had a right, as President, to admit or reject any motion as he thought fit. We opposed this doctrine for some time, not so much with any expectation of success, but in hopes that he would allege some better excuse for rejecting the motion upon consideration, as he did on the 29th Dec. last, when he rejected that relating to Mr. Mores. But he insisted on his absolute authority, and we were obliged to give up the point.

Before we take notice of the visible partiality of Sir Richard Glyn in favour of the Charter Fund, we must mention the strange behaviour of him and Dr. Silvester, when Mr. Claveland desired leave of the chair to quit the court. To the honour of this gentleman, though he is unfortunately by a purchase become interested in the Charter Fund more than equal in value to the shares of Sir Richard Glyn and Dr. Silvester put together, he has ever acted in the most disinterested manner in all debates upon the affair of the Charter Fund. On this occasion he declared to the President that he wished to leave the court, as he did not choose to take any side in the present question. Sir Richard and the Doctor remonstrated by turns against his neutrality, and took up much time of the court, though many objections were made to it, as being out of order, in persuading him to declare his real opinion, and take a part in the debate. Mr. Claveland did not persist in his desire of quitting the room, but observed a neutrality as before, and voted on neither side in the Doctor’s discussion. When the court, however, broke up, Mr. Claveland declared to us, *had he been an orig. Charter Fund Proprietor, one-half of what had been said and proved against it would have made him relinquish his claim.*

It is natural that Mr. Claveland, having purchased many of his shares, ignorant of the fraud, should wish to have his claim to them estab. ; but we see he will do nothing inconsistent with his honour to effect it. Sir Richard Glyn and Dr. Silvester declare they are indifferent to their shares, but think their honours affected by the general charge of fraud in the case, and will therefore oppose the struggle to have it destroyed at any rate.

And as to the partiality of the President in this struggle, whatever is said by a Charter Fund Proprietor is sense and truth : whatever is urged against them is nonsense and scurrility. Known and established facts are dispensed with to open the case ; whatever relates to the bus. of the So., where the Charter

Fund is not concerned, is rejected as irregular; notorious falsehoods are voted as truth, if moved by a member of the Charter Fund, as will appear in the Doctor's marginal notes to the case; while the request of 5 disinterested members to have an account of the monies pretended to be advanced by the Charter Fund Proprietors was treated with contempt by the President, though he was told that neither Dr. Silvester, Mr. Sclater, nor Mr. Mores, had paid their £5 p. share before the signing of the Deed, and though he acknowledged he had often heard that Mr. Mosdell had no right to the shares he claimed in the Fund.

We think it our duty to declare that we disapprove of this conduct in the President, and we wish we could do so with more respect than the present situation of affairs will permit. He was chosen President by the directors, not to exercise any absolute authority over his constituents, but to keep up order and regularity in bus. It is his duty to take care that the interest of the So. is the principal if not the sole object in every debate. He should be the moderator, not the partizan; he should take no side of the question, but state indifferently the arguments of both sides, and then take the sense of the directors with fairness and impartiality. In a So. like ours, nothing but a regard for his trust brings any director to the court. If the President or Chairman, chosen by the directors themselves, treats the board with insolence, or makes their attendance disagreeable, the proprietors at large must suppose their courts will be unattended, and their bus. neglected.

No one can question the reasonableness of the arguments here advanced; but we must follow the protest, which now approaches charges even more grave than any already stated:

But must we not laugh at these pretenders to form, order, and regularity, when we find these given as a reason for not inquiring into, and preventing for the future, a general neglect of form, and a total subversion of order and regularity that has prevailed in this So. ever since the execution of the D. of Sett. ? The alteration of the entrance money, the abolition of the deposit, two strong instances of fraud mentioned in the case, was ordered in a weekly court: ins. have been made, and still are made upon declarations signed only in the presence of one witness, though the Deed requires two; memorials to pol. have been also signed, without regard to the Deed; and the name of an absent director inserted at a court, where four only were present, to make a 5th; and the 20s. divided amongst those 4, under pretence of holding a court of directors. And as to the payment of the entrance money to the Charter Fund Proprietors, there has not been more regularity since the Deed than there was before. If the gentlemen agree with Mr. Mores in insisting that the So. has no right to any account, or any answer, as to any fact previous to the execution of the Deed, surely they will not pretend to say that we ought not to have an account how the entrance money has been paid and distributed since the execution thereof. No such account appears upon our books.

We need mention no instances of the shameful neglect of order and regularity, to say no worse of it, though numberless occur on our minutes. . . . We do further protest against the adjourning the consideration of the case for the following reasons.

Thirdly. It is now asserted—and hard as it may appear to prove a negative, we can satisfy an impartial person—that Mr. Sclater, Dr. Silvester, Mr. Mores, and many more of the Charter Fund Proprietors, did never pay the £5 p. share pretended to be advanced by them; and though Sir Richard Glyn may have paid his money, one should suppose that he would think this a fact of great importance to be inquired into, without further delay.

Fourthly. It has been frequently remarked in our courts that Mr. Mores absents himself when the business of the Charter Fund is before us; we all agree that he has been the principal, if not the sole actor in all the exceptionable bus. He has frequently made his boast that we know nothing of the matter, that he is the only person who can set all to rights, that he will let us go on groping in the dark, and when we are tired he will show us that we have been all in the wrong. The directors are unanimous that the management, or rather mismanagement, of that gentleman has brought on our confusion; we therefore think we ought to be unanimous in insisting that the same gentleman should attend, and give us his assistance by making fair answers to proper questions to get us out of it; but we are, however, satisfied that all time spent in examining the facts in the case, and endeavours used to get further truths without his being examined and obliged to answer, will be thrown away on all sides.

Fifthly. Though every person in the direction has condemned the conduct of Mr. Mores, and though—besides the proof of bad conduct, and an unbounded rapacity which appears in our minutes—his behaviour to individuals, especially to Sir Richard Glyn, and Dr. Silvester, made us almost unanimous at times in wishing him out of the direction, yet this dispute about the Charter Fund seems to have reconciled many of these proprietors to him; and although Dr. Silvester and Mr. Sclater and some others have declared they disapproved of Mr. Mores giving himself an annu. of £200 p.a. by the Deed, and making himself perpetual director, and that they were only induced to sign to save their right to a share of the entrance, which Mr. Mores said they should otherwise forfeit, and to have it in their power thereafter to annul what they had thus disapproved; yet we see those very gentlemen opposing every step we take to seek justice to the So. against this scandalous imposition. Now, as many of the facts against Mr. Mores are contained in the case, we are of opinion they will be reported favourably for him upon a re-examination, while the Charter Fund Proprietors who form the majority are thus disposed to screen him from justice.

This protest is dated 19th Jan. 1769, and signed by Mr. Colepeper and Mr. Waller. It is accompanied by another short document bearing date the same day, and signed by Mr. Smith and Mr. Cruttenden, in add. to the two former. It says:

We have attentively perused and considered this protest, and desire that it may be taken as the joint protest of us all; and we are now satisfied that it will not only be impossible for the affair of the Charter Fund to be fairly settled by a court of directors, in which 7 out of 13 that ever attend are proprietors of that fund, but that no other bus. can be settled for the benefit of the So. by such a direction, composed of persons that have different views, and separate interests; and we cannot help ascribing it to this cause that the affair of the Charter Fund has already been 4 years in settling, which might have been concluded in as many days had the direction in any one year been composed only of four members who have no interest in the Charter Fund. We therefore desire that a general court may be immediately called, which may take the bus. of this fund out of our hands, and put it in some other way of inquiry, more likely to bring matters to a conclusion; and besides the notice to be given in the public papers, we desire that a special summons may be sent to each qualified member requesting his attendance on bus. of the last consequence to the very existence of the So.

It was now the turn of the Charter Fund members of the board to have their say. This they availed themselves of in two documents—1. Notes upon the original case, which we do not intend to deal with here. 2. A general answer prepared in the form of a case, and headed:

The answer of those whose names are hereunto subscribed (Subscribers together with

others towards the estab. of the So. for Equitable Assu., etc.) *to the aspersions, misrepresentations, and falsities contained in a certain writing called Case, and relating to the entrance money of the said Society.* This was in a great measure the answer of Mr. Mores to the charges made against him personally; and it evinces in a marked manner the ability and independence of that gentleman. It is very lengthy, and we can only deal with such passages of it as have a bearing upon points already in the mind of the reader.

Mr. Mores admitted that he engaged in the design of founding this So., "at the pressing instance of a person since deceased, not with a view towards any advantage that might accrue to himself from the success of such a design, nor with a prospect of any good which he might do towards the estab. of it; but purely to oblige this person, and for the company and conversation of Mr. Dodson." In most other respects Mr. Mores makes good his position against the attacks of his colleagues, adducing in several instances important documentary evidence, of which we have availed ourselves in the proper place.

In the document before us there occur the following most remarkable paragraphs:

They admit that the said Lord Willoughby, Dr. Molesworth, Sir Robert Ladbrooke, Mr. Dingley, Dr. Knight, and Mr. Deputy Bridgman, were by the D. of Sett. made directors of the So., not being ins. for a single shilling; so also was every other director named in the said Deed—for how was it possible they could be insured with the So. before the So. itself existed? But the subs., still jointly answering, say, that of the six respectable personages before mentioned, Lord Willoughby acted as President of the Society by appointing *Sir Richard Glyn and Mr. Mores his Vice-Presidents*; that Dr. Knight attended as a director till he was put out of the direction, and Mr. Deputy Bridgman till the time of his death. And Mr. Mores, for himself separately answering, says, *that he was employed by the directors to prevent Lord Willoughby from attending; and that at the very first election of directors of the So. his Lordship was left out of the number, under a pretence that he had not attended!* And the subs. admit that the management and ordering of the So. were chiefly in the hands of the directors, who had been subs. to the estab. of it; and *had the man, continued in their hands, the So. would have been in a much more flourishing situation than at present.*

And the subs. admit that they did, with the unanimous assent of those persons who from the beginning had been concerned with them, abolish the deposit money, and reduce the entrance money, in manner as the writing called *Case* sets forth; and that they did this without the authority of any summoned court; but they say that they reported what they had done to a gen. court of the So. holden on the 26th April, 1764. And Mr. Mores, for himself answering, says, that at the court these proceedings were commended and approved, and that at the next ensuing gen. court they were ratified and confirmed. But he says, that by this court certain matters were referred to the court of directors, touching which they were to make their report to a gen. court; and as that rep. would have discovered some transactions which the person who had the custody of the minutes judged it more for his interest to be concealed, the minutes of the last-named gen. court were not afterwards to be found; and for this reason it was that Mr. Mores, in his draft of the Stat. of the So. c. xv. s. 4 [by these is meant the bye-laws of 1763, already reviewed], inserted the clause that "the Act. should give security against embezzling, purloining, or destroying, any books, papers, or writings belonging to the So."

And they say, That if any director continued ignorant of the affairs of the So., after he became a director of it, it was his own fault, for the Deed, the books, and every paper of the So. were open to the inspection of any director at all times, and were open to the inspection of any member, too, till they were lately locked up from both by the procurement of the framers of the *Case*. They say further that every director of the So. had a copy of the D. of Sett.

And in answer to the infamous assertion, that the subs. were less critical and scrupulous about the lives which they assured (which these directors falsely and scandalously say appear in many to have been the case), the said subs. say that while the old directors who were subs. acted by themselves, unassisted by the sagacity, the wisdom, or the honesty of the new directors, they have been many weeks debating before they would make an assu., although there was no occasion to hesitate at all: inasmuch as by the constitution of the So. the strength of the assu. *stands wholly upon the truth of the declaration of the party who makes it.*

But they admit, if to have ins. upon more fair, more reasonable, and more equitable terms than other ins., may be said to monopolize the bus. of ins. upon lives, they intend to monopolize it, and for the benefit of the public too; an incident which does but rarely attend a monopoly. And they admit that had they gone on in a fair and reasonable and equitable way, as the old directors did at first, and as the remainder of them would have done had not the turbulence of some new directors obstructed them, without raising frivolous and causeless objections, and creating to those who apply such trouble as is universally complained of, the So. would have ten ins. where now they have but one.

But mark the exquisite reason given by these staters against increasing the numbers and strength of the So.: because, forsooth, the subs. would then, instead of £300, receive £3000 p.a. in perpetuity. And thus these real friends of the So. have at length acknowledged the motive upon which they act; the motive hereinbefore assigned, *viz. pique and envy against the subs.*; to gratify which they care not how much the So. is injured, and the So. will no doubt acknowledge itself indebted to them for their labours.

Finally:

And Mr. Mores, for himself answering, denies that he was assiduous in pushing the bus. for estab. the So. by Deed, because he had the greatest share in the subs. . . . And he further says that the increase of shares did not arise till the subs. had come to a resolution of estab. the So. by a D. of Sett.

And he says he made himself a perpetual director because, as Mr. Dodson was to have been a perpetual director, he conceived he had an equal right to be so too. . . . And he says that the very first pol. would have been numbered with the number 250, had it not been for a whimsical desire of his own that his pol. might be numbered with the number 1, and the pol. of the rest of the subs. in the order in which they made their assu.

And he admits that the account of the Society was drawn up by him, and says that the title of the account is *A Short Account of the So.*; and that the contents of it are a true account of the So. He admits indeed that no kind of notice is there taken of entrance money, nor of his annu. of £100, nor of his perpetual directorship; neither is any notice taken of the recompense to the directors, nor of the salary to the Act., nor of the house-rent, nor of the taxes, nor of the expense of coals and candles, of printing and stationery wares, nor of other customary occurrences; nor did he at that time take notice of these particulars, because it was not then imagined that any one could suppose that such a So. could be estab. and carried on without expense.

And he further says that a particular and distinct account of the entrance money was kept by the said Mosdell, distinguishing what part thereof was paid by the members on their admission, and what part thereof was paid by the So.; but as Mr. Mores has been for some time past excluded from any

part in the management of the affairs of the Society, he does not pretend to say where this account now is.

And he says that the prems. of assu. purposely singled out for their smallness in the said writing are prems. for a single year only; and that it has been, and still is, an objection made by the new directors to all prems. which are less than £3 p.c., that those prems. are not adequate because they are less than 3 p.c., and for no other reason whatever. So little is the constitution of the So. or the nature of the bus. understood by the new directors, and so little do they know what prems. are adequate, and what are not.

And therefore, further answering, he denies that several of the directors could plainly see that the So. must be ruined if the prems. were not increased; and he admits that he opposed the measure (how strenuously he cannot say); but his opposition was not so much to the measure itself, as to the absurd manner in which these add. were made: add. arbitrarily imposed without any foundation whatever, and such as in some instances charge a man for being so old, and at the same time charge him for not being older!

And Mr. Mores, for himself lastly answering, says that unfortunately, amongst the new directors have been always one or two more used to talking than thinking, who have acquired the admirable art of speaking much and saying nothing; conceiving that they understand all knowledge, and at their first attendance as directors were better acquainted with, and better qualified to conduct the bus. of the So. than the old directors, who had been so conversant in it for so many years; but finding themselves at some distance from that knowledge which is essential to the prosperity of the So., they fell upon these little matters, because they were not equal to greater, much to the disturbance of the old directors, and to the prejudice of the Society.

It must be always remembered that the passages which we have quoted from this and the preceding Case (to which indeed this latter was the able answer) were not the productions of outside enemies; but emanated from the directors of the So. themselves—hence their value, and the importance to be attached to the glimpses of the inner life which they reveal. Due allowance has to be made for partizanship on either side.

The so-called disinterested directors of the So. laid this answer, together with the notes on the former case by the Charter Fund Proprietors, before the same counsel; who says in his opinion—“*I cannot say that my former opinion is altered, although many of the facts of the case are by the state of it placed in a different light; for I cannot find anything in the state of the case, as represented by either party, that can make the recompense provided for the Charter Fund Proprietors consistent with the principle on which the So. is founded, or with the declarations and professions of the Deed; and as the fact is not denied but that they were Charter F. Proprietors who fabricated the Deed, and held it out to the proprietors at large to execute; therefore it still appears to me that the proprietors at large have cause to complain against the Charter Fund Proprietors, and a right to insist that the recompense ought to be varied and adjusted on principles to be collected from the Deed.*” This second opinion of Mr. Madocks is dated “*Lincoln's Inn, 24 April, 1769.*”

The opinion last stated did not by any means terminate the differences between the rival sections of the Board. Accordingly, in the very same month of April, a further Case, “about certain departures from the Deed,” was laid before the same counsel. In this case it set forth the several departures from the Deed which had taken place, and which we have already noted. Two new and curious causes of complaint are set out as follows:

Sixth. The weekly court has made assu. upon prems. very different from those specified in the Deed, and has made assu. upon joint lives and survivorships upon terms settled at the will and pleasure of such court, *without any set of tables*, or any authority of a gen. court, which, as above, has alone the authority to settle the prems. and advance to be taken in any case; and it has been a practice to ins. an elder life against a younger, which is not mentioned in the Deed, and has never been authorized by a gen. court.

Seventh. The weekly court, in the opinion of some of the directors, has exceeded its power in another instance. The only modes of assu. named in the Deed are assu. on lives, joint lives, and survivorships; and these are particularly described therein as aforesaid. But the weekly courts have assured an annu. or sum. in gross [endowment?] to be paid to children of 7, 8, or 10 years old, when they are at the age of 21, if they live so long; which seems to be the very reverse of the assu. made in the Deed, which are to pay a sum in case the party does not live, while this is to pay a sum if he does.

Eighth. It has been the practice too of the weekly courts to assu. *annu.* to be paid in cases of survivorship instead of sums certain: whereas, this power is not given by the Deed, but in the case mentioned in the clause that speaks of the grants of annu. instead of claims.

The counsel, Mr. Madocks, answered the main points of the case *seriatim* as follows:

1. *Declarations* signed by one witness only are contrary to the express provisions of the Deed; and therefore the weekly courts are not authorized by one deed to receive such declarations. 2. The abolishing the *Deposit* and *adding to the prem.* is contrary to the Deed, and is a power not given to a weekly court. 3. The *memorials* are to be signed by 5 directors, 3 of whom must have been actually present at the court which accepted the life. Memorials signed in any other manner are not within the power of the directors. 4. The power of the weekly courts is restrained to granting *pol.* and admitting members only; and therefore their proceedings in the 4th clause are not warranted by their power. 5. It seems to me that the alteration in the *pol.* in the 5th clause is only in the power of a gen. court, and not within the power of the weekly courts, who are to take their directions for the form of the *pol.* from a gen. court. 6. I apprehend that a gen. court cannot repeal any part of the Deed unless in the instances to which the powers given them extend; but it is clear a weekly court cannot. 7. *The 7th art. appears to be an exercise of power by no means warranted by the Deed, but to be contrary to the Deed.* 8. I think the like of the 8th art.

He was further of opinion that a gen. court could only be called and held according to the terms of the Deed: for a court otherwise held would have no power to bind the whole So., but the acts would be void and ineffectual. Generally, he thought acts done by the directors beyond the powers of the Deed were *ultra vires* as against the So., and that the directors would be personally responsible for the same. This opinion bears date 27th April, 1769.

The party strife still continued. Four of the Charter Fund directors drew up a rep., reflecting upon the other members of the board who had opposed their measures, and

laid the same before the gen. court held 28 April. This contains a fresh revelation. Referring to the past disputes, "which had been carried on in a very illiberal and rancorous manner," it proceeds:

But to give the best account we can of the cause of these animosities, it is to be known that towards the latter end of the year 1767 a so. was set on foot by the name of the *Laudable So. of Annuitants for the Benefit of Age*—a So., as we imagine, founded on no true principles of calculation.

To defeat the views of the projector of this So., Mr. Mores devised a scheme, which would in all prob. have brought to the *Equitable* the greatest part of those who were engaged in the *Laudable*. His design was approved of; and 2 of the directors of this So. were delegated by the court of directors to desire him to proceed in that design, to calculate the necessary prems., and to prepare a new *Account* of this So., and in that *Account* to give a general specimen of the prems. taken by the So. for every species of assu. made by them.

Mr. Mores undertook the work, but afterwards found himself in some dispute with one of the directors upon some questions arising out of it. Hence, he implies, the commencement of the ill-feeling towards himself. We pass over these purely personal matters—"odious disputes" they are termed in the document before us—noting the following prophetic passage, "Vet, as good is oft-times produced out of evil, and the bad designs of individuals made subservient to the benefit of the body-politic, so may it be in the case of this So., which is capable of being advanced to an height unthought of by those who first attempted the estab. of it." In this view, *i.e.* in view of enlarging the scope of the So., it is recommended in this report:

(1) That the directors be enabled and empowered to make assu. of any sort, in any instance wherein the claim to become due, by virtue of such assu., shall depend upon the contingency of life, or death, to happen at a time to come; and more particularly (2) That they be enabled and empowered to assure rev. annu. for the continuance of one life after the failure of another; and (3) That they be enabled and empowered to assure either a gross sum or an annu. to be paid to children after they shall have attained an age assigned; and (4) That they may be enabled and empowered to assure either a gross sum or an annu. to grown persons, if a life on which the assu. is made shall be subsisting at a time to come.

Which three species of ins., we are told, "are greatly sought after, and will (more especially the two latter) be attended with considerable advantage to the public and to the So." Then the following:

We do not scruple to own, that it was the intent, and has been the constant endeavour of us who first embarked in this design, to monopolize the bus. of assu. upon lives, and to cause the whole to centre in this So.; and this may easily be brought about if the general court will so far interfere as to prevent any obstacle to our endeavours from new directors, who cannot, by bare force of election to the directorship, be instantly endowed with that knowledge which is the result of the practice and experience of almost 14 years.

At the gen. court of 28 April, a committee of 9 members was appointed, and it was unanimously resolved that this committee "be at liberty to recommend to a gen. court such measures as may appear to them proper to reconcile the differences which at present subsist between the So. and the first subs." The court stood adjourned until May 5.

The last-named committee proceeded to prepare a rep., based, as was stated therein, upon authentic books, papers, etc.; but as only a mutilated copy of that document is now extant, we shall not dwell upon it. There is, however, one passage bearing upon the origin of the So. which we must give:

That some time in the year 1756 Mr. Dodson, a person of known and approved abilities in speculative calculations, did frame and communicate unto several gentlemen a scheme or proposal for estab. an office of ins. on lives and survivorships upon a more equitable and extensive plan than any of the ins. offices then in being. That his proposal having met with approbation, a subs. was raised by those to whom it had been communicated, for carrying the same into execution under the sanction of a royal charter, and that application was made for that purpose.

This same committee drew up a statement of the facts attending the hist. of the So., much after the manner of the "Case" we have already passed under review. It is prob. that this was designed to form part of the rep. of the committee. In it we find the following passages:

For our own parts we wish earnestly to have the affairs settled without a suit; but we see no more pernicious consequences from the suit here mentioned than any other we have had or shall have; we see more pernicious consequences from the disagreements among the members of the So. about such a suit. If some think it necessary, and others oppose it, the So. in such a dispute must be ruined. No one will ins. with a So. divided against itself. But if the So. join as one man against the Charter Fund Proprietors, who have ever held a separate, distinct, and incompatible interest from the So., who are one with another not assu. in £150 a piece, and care not whether the So. stands or falls, what mischief can ensue? And if it is known abroad that the So. have discovered a gross fraud practised against them, and are proceeding to set it aside with assurance of success, no one will be afraid to engage if they see the So. formed and estab. on a good and useful plan, and conducted with regularity and harmony, and properly secured against accidents or frauds.

But suppose we agree to a compromise, are we sure the Charter Fund Proprietors will accept the proffered terms? Have we not reason to apprehend the same game which we have seen already; and the more so when they will perhaps fancy themselves joined by the 9 members of the committee?

But admit that they will accept, what then will be the state of the So.? *Mr. Dodson's calculations have not provided any fund for the ann. expenses of the So., which amount to £600. The add. made by the Charter Fund Proprietors are such as can by no means be supported as they stand at present. And when a regulation is to take place to provide for such expenses, and the risk of frauds, many of which have already been practised, if we make provision for Mr. Mores' £100 p.a., and the proposed annu. to the Charter Fund Proprietors, who will come into the So. with such a load? and when he will see too that upon Mr. Dodson's plan 8 calls are to be expected in the first 10 years.* . . .

We are of opinion therefore that the state of the So. requires economy as well as harmony; and that such outgoings as £210 p.a. to the Charter Fund Proprietors and £100 p.a. to Mr. Mores will be more than it can bear. *We have already suffered much by many prems. settled by Mr. Mores on assu. of annu. which are not warranted by our Deed; and by the carelessness of the first directors in*

assu. lives without any regard to health, or way of living; and by the long practice of assuring on Dodson's plan, without consideration of the expenses of the So., which since 1762 have not been less than £5000 or £6000. Nothing but perfect harmony can prevent the ruin of the So. . . And how is harmony to be expected if the Charter Fund Proprietors by their own number, weight, and connexions, are to divide the proprietors, and destroy all confidence between them and the directors? If they miscarry in this attempt, we have no doubt but that the So. may be retrieved; and we have as little doubt that when they see the whole body united against them, and that we are not to be intimidated by their threats of a suit, that they will gladly give up their claim, and satisfy the So. as to every demand which has been mentioned. And we are the more satisfied of this, as we have no doubt but those among the 21 who have had no hand in the orig. and subsequent frauds will give up their brethren, who will find themselves unable to stand when deprived of their support.

We confess that, however unscrupulous the Charter Fund Proprietors may have been in upholding their rights, it seems to us that the parties on the other side were no less disposed to be unscrupulous in their turn. They had indeed the plea of acting for the good of the So.—but even that could not justify coercion amounting to dishonesty. However the opposition prevailed. In consequence of a resolution of the adjourned gen. court of May 5, Mr. Mores drew up the following document, which becomes historically important in view of the events already narrated:

Be it remembered that this 8th day of May, 1767 [it seems to have been dated back intentionally], it is condescended, agreed, and finally concluded by and between us whose names are underwritten, subs. to the *So. for Equitable Assu. on Lives and Survivorships*, on the one part, and Roger Staples and Wm. Waller, Esqrs., two of the present directors of the said So., on the part and behalf of the rest of the directors and trustees of the said So., on the other part, in manner following, that is to say, That for the avoidance of all further disputes and differences, and for the peace and welfare of the said So., we the said subs. are content and do hereby agree to relinquish all our right in a certain fund called the Entrance money of the said So. (to which we are entitled under the D. of Sett. of the said So. as a recompense for the moneys by us advanced and expended in the prosecution of the means whereby the said So. hath been estab.) to the use of the said So. in consideration of an annu. of 40s. p.a. for every of our shares in the said fund to be paid to us or our assigns for the term of 14 years, to be computed and reckoned from Christmas day now last past; and we the said subs. do for ourselves severally, and not jointly, undertake, covenant, promise and agree to and with the said Roger Staples and William Waller, their executors and administrators, that we will by deed, good, valid, and sufficient in the law, remise, release, and quit claim to the trustees of the said So. to the use aforesaid, all our right, title, claim and demand in and to the said fund, and in or to the issues or profits thereof, the said trustees delivering to us good and sufficient security for payment out of the stock or funds of the said So. of the said annu. for the term aforesaid. And the said Roger Staples and Wm. Waller, on the part and behalf of the rest of the directors and trustees of the said So., do hereby grant, covenant, and undertake, to and with the said subs., and to and with every of them, their, and every of their executors and assigns, that such security shall be delivered unto them on or before the 24th day of June now next ensuing.

This document bore the signature of the 16 subs. then surviving; and with its adoption terminated the series of disputes which had so long existed, and which had assumed the serious proportions already set forth.

This year, 1769, was destined to be of importance in the hist. of the So. in another respect: for towards its close was pub. Dr. Price's work; *Obs. on Rev. Payments*, etc., which afterwards became so famous. In it he reviewed the plan of the several annu. and ins. associations then existing; dwelling especially on the scheme of the *Amicable*. Having pointed out what he considered to be some important defects in the last named, he says: "All these objections are removed by the plan of the So. kept in Nicholas-lane, Lombard-street, which has justly styled itself the *So. for Equitable Assu. on Lives and Survivorships*. This So. if due care is taken, may prove a very great public benefit." He then gives the following outline of the origin and features of the So.:

It was founded in consequence of proposals which had been made, and lectures recommending such a design, which had been read by Mr. Dodson, the author of the *Mathematical Repository*. It assu. any sums or rev. annu. on any lives for any number of years, as well as for the whole continuance of the lives, at rates settled by particular calculation; and in any manner that may be best adapted to the views of the persons assured. That is, either by making the assu. sums payable *certainly* at the failure of any given lives, or on condition of survivorship; and also either by taking the price of the assu. in *one present payment*, or in ann. payments, during any single or joint lives, or any terms less than the whole continuance of the lives. In short the plan of this So. is so extensive and so important that I cannot satisfy my own mind without offering to the gentlemen concerned in the direction of it the following obs., hoping that they will not think them impertinent or improper.

First. They should consider what distress would arise from the failure of such a scheme at any future time; and what dangers there are which ought to be carefully guarded against in order to secure success. I have already more than once observed that *those persons will be most for flying to these estab. who have feeble constitutions, or are subject to distempers, which they know render their lives particularly precarious; and it is to be feared that no caution will be sufficient to prevent all danger from hence.*

Again. In matters of chance it is impossible to say that an unfavourable run of events will not come, which may hurt the best contrived scheme. The calculations only determine prob.; and agreeably to these, it may be depended on that events will happen on the whole. But at particular periods, and in particular instances, great deviations will often happen; and these deviations, at the commencement of a scheme, may prove either very favourable or very unfavourable.

But further. The calculations suppose that all the monies received are put out immediately to accumulate at compound int. They make no allowance for losses or for any of the expenses attending management. On these accounts the payments to a so. of this kind ought to be more than the calculations will warrant. The int. of money ought to be reckoned low; and such *T. of obs. used as give the highest values*. Mr. Dodson, I find, has paid due attention to all this, by reckoning int. in his calculations for this So. at 3 p.c. and taking the lowest of all prob. of life, or those deduced from the *Lond. B. of Mort.* Should the consequence of this prove, that in some future period the So. shall find itself possessed of too large a cap, the harm will be trifling, and future members will reap the advantage. But this leads me to repeat an obs. of particular consequence.

As this So. is guided in every instance by strict calculation, it is not to be expected that it can meet with any difficulties for many years: because not till the end of many years after it has acquired

its *maximum* of members, will the *maximum* of yearly claimants and annuitants come upon it! Should it therefore, through inattention to this remark, and the encouragement arising from the possession of a large surplus, be led to check or stop the increase of its stock by enlarging its dividends too soon, the consequences might prove pernicious.

Again. I would observe that it is of great importance to the safety of such a So. that its affairs should be under the inspection of able mathematicians. Melancholy experience shows, that none but mathematicians are qualified for forming and conducting schemes of this kind. In short, dangerous mistakes may sometimes be committed if the affairs of such a So. are not managed frugally, carefully, and prudently.

I must not forget to add that it is necessary that such a So. should be furnished with as complete a set of T. as possible. This will render the bus. of the So. much more easy, and also much more capable of being conducted by persons unskilled in mathematics. It will also contribute much to its safety. For in all cases to which T. can be extended there would be no occasion for employing any calculators; and consequently, a danger would be prevented, to which, though it is not *now*, it may hereafter be exposed: I mean the danger of happening to trust unskilful or careless calculators. Mr. Dodson, I find, has furnished this So. with some important tables; and his skill was such, that there is no reason to doubt they may be depended on. They have also others which I believe are safe and accurate. But there are some still wanting which should be supplied; and all should be subjected to the examination of the best judges, and afterwards pub., together with a minute account of the principles assumed and the method taken in composing them. Such a pub. would be a valuable add. to this part of science; and it would also be the means of increasing and estab. the credit of the So.

Mr. Wm. Morgan, in his *View*, etc., remarking upon the preceding obs., says:

So far as regarded its premis. orig. computed by Mr. Dodson, Dr. Price was certainly justified in his commendation of this So.; but had he been aware of the many exorbitant and absurd add., which had been made to these premis. for the imaginary risk of youth-hazard, female-hazard, etc., or had he been acquainted with some of the clauses in its D. of Sett., he would have modified his commendation, and, perhaps, doubted the propriety of the title by which it was designated. Happily, however, by his advice, the unreasonable charges above mentioned have long since [Mr. Morgan was writing in 1828] been discontinued; and the So., profiting by the experience of subsequent years, has so far altered and amended the objectionable parts of the D. of Sett. as to render the inst. one of the most beneficial that has ever distinguished this kingdom.

In 1769 was pub. in separate form: *A State of the So. for Equitable Assu. on Lives and Survivorships, and a state of facts from the year 1756 to the present time. Laid before the gen. court the 28 July, 1769, by the court of directors.* This we assume to have been prepared by the committee appointed at the gen. court of 28 April; but upon this point we are not entirely free from doubt. We have already quoted this document in connexion with the proceedings of that committee.

1770.—One of the first steps which followed the settlement of disputes was the altering the provisions of the Deed of the So. into conformity with the practice. Accordingly at a gen. court held 27 June, 1770, a bye-law was enacted which embraced—1. New provisions regarding making “calls” upon the policy-holders in view of any deficiency in the funds from time to time found to exist. 2. As to distribution of surplus. 3. Reduction of entrance fee. 4. Deposit abolished. 5. Mode of levying fine for non-appearance before the board altered. 6. Every person becoming a member of the So. to conform to the rules and ordin. of the So. during the maintenance of the pol., and no longer. 7. Exceptions as to persons dying by their own hands, or by hands of justice, to be omitted from pol. on life of another. 8. That at quarterly and extraordinary courts, the presence of one director forming part of the quorum to be sufficient; he to preside. 9. At weekly meetings, if President or Vice President not present, a director might preside. 10. Defined bus. for weekly meetings. 11. No ins. to be completed within 8 days of making proposal, “in order to give the better opportunity for making the necessary inquiry concerning the life proposed to be assu.” 12. Declaration of int. to be made on insuring life of another. 13. The directors might accept surrender of pol. 14. Directors might grant annu. in respect of any life claim falling due; such annuitants not to be liable for calls, nor entitled to parti. in surplus. These features are spoken of in more detail under their respective sub-headings.

On 12 July, 1770, a further bye-law was enacted, embodying the following points: 1. Persons ins. in So. for £100 or upwards on life of another, to have vote. 2. Five directors might be qualified by ins. of £300 and upwards on life of another, their residence being within 20 miles of London.

The pol. in force in the So. in 1770 had become reduced to 490. This Mr. Wm. Morgan, in his *View*, etc., considered might be partly owing to the disputes which we have been tracing. He adds:

A claim so disproportionate to any expense which could possibly have been incurred naturally excited the jealousy of the new members, which kindled into a flame that might have destroyed the So., had not the moderation and good sense of Sir Charles Morgan (then Mr. Gould) and a few other sober-minded gentlemen allayed the fervour of the contending parties, and at length prevailed upon them to enter into a compromise. [Sir Charles afterwards became Chairman of the So. in 1773.]

Mr. Morgan continues:

But although this compromise produced tranquility, the effect of it was not immediately felt in the increased number of new assu.; and it is doubtful whether the Society would not have continued to languish for some years longer, if its credit had not been raised by the notice taken of it in Dr. Price's *Treatise on Rev. Payments*, which was first pub. in 1769.

1771.—7 March.—Add. bye-law was made, embracing the following points: 1. Qualification of directors. 2. So. might ins. either gross sum or annu. to children after attaining an age assigned. 3. Or on grown persons. 4. Existing pol. on life of another to enjoy same privileges as new pol. as to suicide, etc. 5. Gen. court might be called by any 9

members, giving 10 days' notice. 6 June.—Bye-law. 1. As to annu., see sub-heading *Annuities*. 2. One witness to declaration to be sufficient. 3. Weekly meetings of directors altered from Tuesdays to Wednesdays, and notice abolished. Pol. might be granted at these meetings. 5 Dec.—Alteration in allowance to directors—*Directors' fees*.

1772.—5 March.—Bye-law as to surrender of pol. enacted. 16 April.—1. £3 3s. to be divided among members present at gen. courts when clock struck 12, even though no quorum. 2. Repeal of restriction against membership in any other So. 3. Pol. made before repeal ratified. 4 June.—Lives of females to be ins. on same terms as males. 3 Dec.—Regulations as to holidays.

Mr. Wm. Morgan, in his *View*, etc., referring to one of the above bye-laws, says :

It does not appear, from any documents in the office, that any gen. court was holden during the first three years . . . So indifferent, indeed, were they as to the concerns of the So., that gen. courts were repeatedly summoned and dissolved for the want of a sufficient number of members to constitute them; nor could a full attendance be procured till it was resolved in June, 1772, to distribute 5 guineas among the first 21 members that should be present at the court before 11 o'clock—a distribution which, with some slight alterations, is still [1828] suffered to exist, though the circumstances of the So. have long since ceased to require it.

Mr. Morgan appears to have fallen into some confusion alike as to the date and amount of the allowance to the gen. courts. [See sub-heading *Gen. Courts*.]

1773.—May.—Sir Charles Morgan, who, as we have seen, became so instrumental in allaying the feuds of the preceding years, was elected President of the So. ; and his family [now the Lords of Tredegar] have continued to occupy the presidential chair down to the present date. In 1783 the portrait of the Sir Charles now under notice was painted by Gainsborough, and adorns the board-room of the So. This portrait cost £150. Its present value may be taken at £2000. In 1807 his son (Sir Charles Morgan No. 2) became President ; and when he died, it was mentioned on his tomb that he had held this office. In 1846 Sir Charles No. 3, now Lord Tredegar, became and remains President.

On 17 June it was ordered that a list of the members of the So. eligible for the office of director be printed before gen. courts for election of directors.

1774.—At the commencement of this year the pol. in force in the So. were 734, ins. £230,000 ; and yielding in prems. about £9500. The Life Fund consisted of £33800 in the 3 per cents.

17 Feb.—New bye-law, ordering—1. Actuary to give security for £2000. 2. That Act. reside in the house of the So. 3. That an "Assistant Act." be appointed.

The Assistant Act. so appointed was none other than Mr. Wm. Morgan, whose name became for a long period of years indissolubly associated with the history and progress of the So. We propose to let Mr. Morgan narrate the circumstances of his appointment ; and by way of preface to this, to tell us something about the preceding incumbents of that office. We quote from the *View*, etc.

From the choice of the first two or three Act., it does not appear that much mathematical knowledge was thought necessary to conduct the affairs of the So. Mr. Mosdell, who is stated to have been only an accountant, was appointed by the Deed to be the first Act. ; and on his death in December, 1764, Mr. Dodson succeeded, who was the son of the excellent mathematician who computed the So.'s T., but without the mathematical learning of his father. Upon obtaining a place in the Custom-house, more suited to his abilities, Mr. Dodson resigned in April, 1767, when Mr. John Edwards, who I believe had not been successful in trade, was chosen to the office, with as much mathematical knowledge as his two predecessors. There is no doubt however that all these persons, so far as related to the mere matter of accounts, were fully competent. Of Mr. Edwards, in particular, too much cannot be said in praise of the order in which the accounts were kept, or of the manner in which they were arranged, for ascertaining the real state of the So. in the earlier periods of its existence. But unfortunately he was not sufficiently informed upon the subject to avail himself of the statements which he had prepared with so much labour : and therefore they served only to mislead him, in deducing results from them which led to no conclusions whatever as to the state of the So. In all cases of assu. requiring a particular computation, Mr. Edwards had recourse to the friendly assistance of Dr. Price, who, from his regard to the welfare of the So., was always gratified in being consulted on these occasions. *This makes it more wonderful that he should never have been consulted in a case of such vital importance as the solvency of the inst.* The distribution of the surplus into different classes, without any direction as to the mode in which that surplus was to be ascertained, affords no great proof of the knowledge or precision of those who formed the D. of Sett. ; and as no regard appears to have been paid to these qualifications in the choice of their Act., it certainly became the more necessary to profit by the advice and instruction of such a person as Dr. Price. But since the successful progress of the So. during the man. of the bus. by these Act. was never interrupted by the impatience of the members for a premature invasion of the cap., and no evil consequences have arisen from any want of knowledge in those who attempted to investigate its affairs, *perhaps it is as well that the So. was not more fully informed upon the subject.*

We now reach the incident of his own appointment :

On the death of Mr. Edwards, in December, 1773, one of the vice-presidents, no greater proficient in mathematics than his predecessors, was chosen in the following February to succeed him, who, being in a declining state of health, and totally incapable of attending to bus. during the greater part of the few months that he survived, I have only to observe that no other alteration was made in the affairs of the So. *than the formation of the new office of Assistant Act., to which, as the nephew of Dr. Price, I was immediately appointed, and in which I continued only 1 year—being chosen in February, 1775, to the more important office of Act.*

He adds :

With the assistance of such a friend as Dr. Price, whatever difficulties I might otherwise have encountered, I was enabled to discharge the duties of my new office ; and though very young at the time, and associated with two others still younger than myself, I have reason to know, from the experience of many subsequent years, that the interests of the So. were never injured by that circum-

stance. *From this period a new era may be said to have commenced.* The So. no longer going on from year to year in ignorance and error, incapable of deducing any just conclusion as to its real state, became now, by its more intimate connexion with Dr. Price, possessed of ample means for ascertaining that fact, and forming its future measures on the solid principles of mathematical science.

1775.—The So. moved its offices from Nicholas Lane, Lombard Street, to "Bridge Street, near Black Friars Bridge," where it remained until 1870, when the present handsome offices opposite the Mansion House were taken. 23 Feb.—Bye-law ordering auditors to be chosen out of members ins. for £300 on their own lives, or lives of others. 2 March.—Amount to be ins. on any one life increased from £1500 to £2000.

In this year, as we have seen, Mr. W. Morgan became Act. of the So., which position he occupied down to 1830, when he retired.

1776.—A particular inquiry was made into the state of the So. on a plan recommended by Dr. Price. The results were—1. That a much smaller mort. had been experienced among the members than the calculations had supposed. 2. That the So. possessed then a surplus of income (*i.e.* an income more than was necessary to enable it to make good its engagements, and to bear expenses of management) equal to £2400 p.a. nearly, and a surplus stock equal to £30,000. In these circumstances the So., "not wishing to continue any exorbitant profits," determined to reduce all the payments for assu. on single lives *one-tenth*. "They might (says Dr. Price, from whom we quote) have reduced them much more, but there were several reasons which deterred the directors from proposing any greater reduction."

It will be instructive to ascertain what these reasons were; and Dr. Price has stated them as follows:

1. It was proper to give the plan of the So. a longer trial before any great reductions were made in its income. It could not be depended on that the prob. of living in the So. would continue so high as they had hitherto been; and it was to be expected that seasons of extraordinary mort. would come which would bring on the So. extraordinary expenses. Its security against this danger lies entirely in its *surplus stock*; and it was therefore necessary, in order to give it full security, and to render it as much as possible a permanent benefit to the public, that this surplus stock should go on increasing for some years longer. When I speak of full security, I must be understood to mean all the security that property in the public funds can give. It is earnestly to be wished this was greater than it is; but though greater might be obtained, yet in an undertaking of this kind it is scarcely reasonable to aim at it.

2. When the reduction which I have mentioned was resolved on, it was also agreed that the whole overplus should be returned of the payments which had been made by the members, above those which they *would* have made had the reduction taken place at the time of their admission. This made the So. less capable of bearing any reduction of its income; and it would have made a greater reduction particularly imprudent. Different opinions have been entertained of this measure; but the truth is, that (however safe and just the prosperous state of the So. then rendered it) it is in itself a measure of the most pernicious tendency, and which ought by no means to be again adopted. A repetition of it in future reductions might hurt the So. essentially, by withdrawing from it that security which it has been providing for many years, and bringing it back to infancy and weakness. It would likewise be subversive of its own end by making the So. incapable of proceeding to further reductions as soon as it otherwise might; and by rendering them, when made, less considerable than they should otherwise have been. Such a measure might therefore be no less detrimental to the interest of even the members who might be led to desire it by the hope of present profit, than unkind and injurious to the So. at large. For these reasons, and in order to prevent the future bad effects which may arise from the late precedent, I cannot help wishing that a resolution of a gen. court could be procured prohibiting every step of the same kind hereafter. Could such a resolution be obtained, the directors would be at liberty to propose such further reductions as from time to time they might judge proper; and particularly they might immediately take off from all the payments for assu. on single lives, the add. of 6 p.c. with which these payments are at present charged in the Tables. This was once a proper charge; but in the present circumstances of the So. it is certainly an exorbitant charge; nor does there appear to be any good reason for continuing it, except the danger of being forced to another return of overpayments.

The preceding inquiry was in fact the first actuarial investigation into the affairs of the So. There were then in force 913 policies. The accumulated fund was reported to be about £60,000, chiefly invested in the 3 per cents. The surplus was officially stated to be £25,000 [Mr. Morgan, in the 2nd ed. of his *Doctrine of Annu.*, etc., 1821, says, it was "considerably over £30,000!"], of which however but £11,000 was divided; and on what principle this was allocated, does not appear. It was prob. simply *one-tenth* of all prem. previously paid by the then existing members; and the amount was returned in cash—the only cash distribution the So. ever made (see 1821).

The manner and extent of Dr. Price's connexion with the So. have been the frequent subject of comment and surmise. They need not have been so, for in an introduction to Mr. Wm. Morgan's *Doctrine of Annuities*, etc., pub. 1779, Dr. Price (who wrote the introduction, and addressed it especially to the *Equitable So.*) himself furnishes the following details:

My acquaintance with this So. was occasioned by the pub. (in 1770) of the 1st ed. of my *Treatise on Rev. Payments*. In that treatise I stated particularly the plan of the So.; and at the same time offered some obs. upon it. The directors were pleased to attend to these obs.; and they have *ever since* desired my assistance, whenever they have thought I could be of use to them. In return for their regard and attention, as well as from a desire to promote the public interest, I have been anxious about doing them all the service, and giving them all the information in my power. This led me four years ago to take into consideration the method in which they kept their accounts, and *determined annually* their profits. Thinking this method too loose, I took the liberty to propose another, which I thought more strict and decisive. This method was approved and adopted; and by means of it the So. has been enabled to keep constantly under its eye the true state of its affairs, the expenses of man. which it can afford, the progress of the bal. in its favour from year to year, and the clear amount remaining in hand of all the profits it has made from the time of its first estab.

He adds:

Believing as I do that this So. is capable of being made an object of great consequence, not only in *this*, but to *other* kingdoms, and wishing to contribute all I can to its credit and honour, I hope I shall not be thought too presuming if I proceed a little further in these strictures, and take the liberty to recommend to it the following obs. and proposals.

These will be noticed under date 1779. Whether Dr. Price's services to the So. were professionally remunerated, or entirely honorary, has, we believe, never been stated.

Mr. Wm. Morgan, in his *View*, etc., gives the following account of the preceding investigation:

In the year 1776 Dr. Price communicated to the court of directors some observations on the proper method of keeping the accounts, and determining from year to year the state of the So. This invaluable communication contained three plans for that purpose detailed at considerable length:—The first, by ascertaining the proportion of the claims to the premis; the second, by comparing the decrements of life in the So. with those in the T. from which its premis were computed; the third, by making a separate computation of the values of all the different pol. of assu., and comparing the amount with the cap. [Life Fund] of the So. In add. to these plans, Dr. Price, among other important advice, urged the necessity of altering the T. of premis. then pub. in the *Short Account* of the So., not only as being exorbitant, but absurd, and inconsistent with the result of all obs.—alluding particularly to the female and youth hazards. *These extraordinary charges were, in consequence, immediately abolished*, and each of the three plans above mentioned was adopted for ascertaining the state of the So. from the year 1768 to the year 1776 inclusive. By the first of these plans it appeared that, on an average during the 9 preceding years, the ann. surplus had been about £3000. By the second plan, that the prob. of life in the So. had been higher than those in Mr. Dodson's T., from which its premis were computed, *in the proportion of 3 to 2*. And by the third plan, that the whole surplus stock amounted nearly to £30,000. In consequence of results so highly favourable to the So., the premis were reduced one-tenth, *which does not, however, appear to have had any great effect, either in increasing the bus. or in lessening the ann. surplus*; for the continual accession of new members, by adding to the number of the old ones, fully supplied the deficiency produced in the surplus by the reduction of the premis, and thus made it increase very nearly in the same proportion as in the two or three preceding years.

1777.—The reduction of premis. to the extent of 10 p.c., determined upon last year, took place as from June, 1777. Mr. Morgan, in the 2nd edition of his *Doctrine of Annu.*, etc., 1821, speaks of the investigation as having taken place in 1777.

1778.—On 3rd Sept. the following bye-law was made:

That altho' it has been the usage of the directors to invest the moneys of the So. altogether in the public funds, and this is accordingly pub. in the succinct account of the plan and basis of the So. as the usual practice, the court of directors has nevertheless full and free liberty, agreeably to the orig. D. of Sett., to lay out the moneys either in Gov. or in other good and sufficient securities, at their discretion, as they may judge most expedient and beneficial to the So.; and that it may be desirable that some of the moneys should be laid out upon different securities, presumably of equal validity, rather than that the whole should rest upon one and the same security.

1779.—Dr. Price, in the preface to Mr. Morgan's *Doctrine of Annu.*, already referred to, contrasting the position of the So. in 1779 with that of three years preceding, says: "*The So. has continued to increase so fast that both its income and stock have been in the last three years nearly doubled. Its profits have in the same time increased considerably, but not in the same proportion, on account of the reductions mentioned.*" He also offered the following add. obs.:

It is particularly to be wished that the So. was furnished with a set of Tables (showing the values of assu. on single lives) more correct and elegant than those it now uses, and more accommodated to the bus. it carries on. . . . There were good reasons for beginning with such Tables; but the So. being now estab. in some degree of security, and having better grounds to go upon, it would, in my opinion, be right to calculate new Tables founded on observations which will give the values of life assu., not among the bulk of the people in Lond., where life is particularly short, but among mankind in general. The decrements of life at every age, as deduced by Dr. Halley from obs. at Breslau in Silesia, or those deduced from the Bills of Mort. at Northampton or Norwich, are nearly the mean decrements between those in great towns and in country parishes and villages. As the So. assures town and country lives indiscriminately, these are the obs. by which it should be guided. *But obs. proper for its purpose than even those may now be obtained.* I mean those furnished by the Register of Mort. estab. a few years ago at Chester, under the direction of the ingenious Dr. Haygarth. . . . *Tables therefore of the values of life annu., assu. and rev. calculated from this regis. would be a valuable acquisition; and might form a standard for the bus. of the So. which would be of great use to it.* But they might be raised as high as should appear to be necessary to the perfect safety of the So. by making a charge upon them of 10 or 15 p.c., and giving them in the proposals of the So. with such a charge.

At this point he adds a note:

Care should be taken to remember that I have here in view only assu. on single lives, the longest of two or more lives, and joint lives. The values of assu. on survivorships are, in many cases, *greater* when the chances of life are *greater*; and it is of particular consequence that the So. should attend to this, and distinguish between the cases in which its interest requires it to compute from obs. that give the chances of life *high* rather than those which give them *too low*.

He resumes:

Secondly, the bus. of the So. requires that it should be possest (*sic*) of T. of the values of two joint lives at all ages, agreeably to the best obs., and true to at least three places of decimals. Without such T. it is impossible to find, in many cases, the true values of the assu. to be made by the So., and particularly of assu. on survivorships for terms. There are now no such T. extant. Mr. Simpson's T. in the *Select Exercises* is adapted only to Lond., and gives the values only to 1 place of decimals. . . . The So. therefore, in order to a more perfect management of its bus., should direct such T. as I have described to be calculated. And were they even to go as far as to furnish themselves with T., equally exact, of the values of *three*, as well as of *two joint* lives, their bus. would be still more assisted, and considerable service done to this part of science. The expense of such calculations can be no object to them, and the most easy and expeditious method of making them has been distinctly described by Mr. Morgan in the following work.

He then passes on to a most important, and then novel question—that of the *medical selection of lives proposed for ins.* He says :

Thirdly, I must take the liberty to remind the So. of the particular care necessary to prevent the intrusion of bad lives. *It must be ruined should it ever become, not a refuge for the living and healthy, but for the sick and dying.* Its prosperous state proves that the vigilance of the directors has hitherto guarded it against this danger ; but its great increase exposes it to more and more of this danger ; and therefore it would not perhaps be amiss to appoint a medical assistant, whose particular bus. it shall be to inquire into the state of health of the persons who are offered to be assured. Should such a regulation be the means of excluding but two or three bad lives ann., which would otherwise have been admitted, the expense attending it will be more than compensated. This without doubt is the principal danger to which the So. is exposed.

Mr. Morgan, in the same work, gave some account of the mort. experience of the So., as ascertained by an investigation on Dr. Price's methods. The results will be set forth under EQUITABLE SO., MORT. EXPERIENCE OF.

1780.—During this year the last payment was made to the Charter Fund Proprietors, and they were for ever disposed of.

1781.—This is an important year in the annals of the So., for in it the *Northampton T.* was first made the basis of the calculations of the So. Mr. W. Morgan, in his *View*, etc., gives us the following account of the circumstances :

In 1780 Dr. Price had formed a great number of T. deduced from the prob. of life at Sweden, Chester, Northampton, and other places, preparatory to the 4th ed. of his work on *Rev. Payments*. These tables he considered as more correct than any hitherto pub., and recommended the adoption either of the *Chester* or the *Northampton* to the So., in lieu of the very imperfect T. from which its prems. had hitherto been computed. This, like every other measure recommended by Dr. Price, was agreed to without hesitation, and before the end of the year 1781, a complete set of T. was formed from the *Northampton* obs., consisting of more than 20,000 computations, and containing the values of single and joint lives of all ages, and the single and ann. prems. of assu. of every description ; but the latter, though computed at 3 p.c., were so far below the prems. then in use, that it was thought proper to make an add. of 15 p.c. to them, to prevent too sudden a reduction in the ann. income of the So. By the adoption of these new T. the ann. prems., which would then have been £36,000 if the old T. had been continued, were reduced to little more than £32,000 ; and in order to compensate the members then existing for having contributed to the success of the So. by the payment of higher prems. than were necessary, an add. was made to each £100 ins. by them of 30s. for every payment which had been made prior to 1st Jan. 1782. This is the earliest distribution of surplus to which reference is made in the ordinary pub. of the So. [See 1776.]

An abstract of the rates of prem. charged under the *Northampton T.* is given in sub-heading *Premiums* at the end of this art.

Mr. Samuel Brown, at a meeting of the Inst. of Act., 26 April, 1863, gave the following version of the events just passed in review :

The T. first used by the *Equitable* So. was as much above the average as the *Northampton T.* is above those now used. It was derived from obs. in the City of London, and was loaded with 15 p.c. Finding this T. produced great profits, Dr. Price was consulted as to what T. representing a lower rate of mort. could be safely used ; and he laid before the directors two sets of tables. The *Northampton T.* was not pressed upon them, but the *Chester T.* was. Finding, however, that the *Northampton T.* made them safer as to the risks they were running, they resolved to adopt the *Northampton* in preference to the *Chester T.* as recommended by Dr. Price.

On the 20 Dec. the following bye-law was made :

That for the extraordinary risqué attending the lives of *military* persons, an add. be made after the rate of 22 p.c. upon the respective prems. ; and for the risqué of *smallpox* or *gout*, add. after the rate of 11 p.c. ; the said extra charges being proportionate to the charges which are now made for those respective risqués.

1782.—17 Jan.—The sum to be distributed amongst the members of the gen. court was increased to £10 10s., subject to the like regulations as had been made regarding the former allowance of £5 5s. 5 Dec.—Where two persons were ins. under any pol., only 1 to be elected as director or trustee at same time.

1783.—18 Dec.—Regulation that no member be appointed to audit the accounts of the So. in two successive years, directors only excepted. Limit of ins. on any one life increased from £2000 to £3000.

1784.—The pol. in force at the commencement of this year were 1608, ins. £720,000, and yielding in ann. prems. over £23,000.

1785.—The events of 1781 led to so large an increase of the bus. of the So. during that and the next 3 years that the entire number of pol. in the So. had increased by one-half, "and the ann. income in the same proportion." This rapid growth of the So. (says Mr. W. Morgan), added to the circumstance of no particular investigation having been made of its actual state since the year 1776, led to the resolution of making a fresh investigation, "before any measures should be adopted which had a tendency to affect the finances of the So."

1786.—In the course of 1785 the new investigation was completed, and the result proved so highly favourable that it was determined at a gen. court, 21 Dec. (1) to take off the charge of 15 p.c. on the prems. ; (2) to make a further add. of £1 to each £100, for every payment made prior to the 1st Jan. 1786. By these operations the surplus of £164,000 was reduced to £110,000, and every person insured prior to 1772 had 30 p.c.

added to the sum orig. ins. The sums ins. were increased from £977,330 to £990,000, or by £22,670, being in the ratio of 1 in 43.

This year was also memorable as furnishing the occasion of the first of that famous series of "Addresses" delivered by the then Act., Mr. W. Morgan, who says: "On this occasion I took the liberty, for the first time, of addressing the court of directors on the state of the So., and proposing a few alterations in the method of conducting the bus., which were approved and adopted." This Address is not included among those pub.

1787.—The number of forfeited pol. in the So. from 1770 to 1787 amounted on an average to 125 p.a., or 1 in 7 of all the ins. granted! The forfeitures continued long after this date, but in a lesser degree, as the value of the bonus add. came to be better understood. By way of explanation of the apparently large number of forfeitures of pol. in the early years of the So., it requires to be known that a considerable part of the pol. then issued were for bus. purposes—to cover annuity transactions, which extended over 5 or 7 years only; and as no short-term pol. were then issued, whole-life pol. were had recourse to. But they were never intended to be kept in force beyond the currency of the transaction they were intended to cover. [See 1793, 1800, and 1809.]

The qualification for directors was increased to £1000 under a whole-life pol.; while the qualification to vote at a gen. court was increased to £300.

1790.—The limit to be accepted on each life was increased to £5000.

1791.—A further add. of £1 was made to every £100 ins. Mr. W. Morgan (*View*, etc.) says hereon:

From the year 1786 to 1791 the prob. of life and the proportions of the claims to the prems. appeared in each year to have been so much in favour of the So. that it was thought a further add. of £1 p.c. might be made to the sums assured, *without any previous investigation*. Though perfectly secure in this instance, such a method of proceeding was extremely hazardous, and the So. in a few years afterwards had reason to be convinced of the bad effects of it. An add. made in this precipitate manner allowed of no time for determining how much it diminished the surplus stock, so that it was represented by the ignorant and avaricious as altogether insufficient, and excited them in the following year to attempt a repetition of it. . . .

3 March.—Bye-law made confirming election of directors by ballot; but making alteration as to election of auditors. 22 Dec.—New regulation as to lapsed pol. in certain cases

Dr. Price died this year, aged 68.

1792.—During this year an attempt was made at a gen. court to secure a further arbitrary add. to the pol., as had been done in the preceding year. Happily the great majority of the members present were guided by better councils, and it was determined that, before any further measures affecting the finances of the So. should be adopted, a minute investigation should be made of the real state of its affairs to the 31 Dec. 1792. The investigation was made during the course of the following year, where we shall give the details.

7 June.—The voting at gen. courts by new members was limited to persons ins. for whole term of life in not less than £500.

Dr. Price, in the 5th ed. of his *Reversionary Payments*, 1792, gives an account of certain societies making specific provision for widows, wherein he says: "The office for *Equitable Assu.* in Chatham Place, Lond., includes also in its plan a like provision for widows. And these are all the Annu. Inst. with which I am acquainted that are guided in this instance by the lights derived from correct obs. and mathematical principles."

1793.—The investigation made as from the end of the preceding year showed that there were 4640 pol. in force; while the surplus had increased from £110,000 in 1786 to £300,000. "Possessed of such a surplus, there could be no doubt of the safety of a further add., and in consequence £2 p.c. was now added, so that this, with the former add., doubled every £100 assu. prior to 1771, and the assu. of an earlier date were increased in a higher proportion." We quote from Mr. W. Morgan, who adds:

The magnitude and extreme importance of the inst., added to the consideration of my having been nearly 20 years engaged in conducting it, encouraged me to address the gen. court on this occasion, chiefly with the hope of moderating the expectations of the most sanguine, by representing the powerful and certain, though remote effects of these add. and the danger of forming any opinion of their extent, from their effects in the earlier part of their operations. This well-intentioned address was favourably received; but it did not succeed in preventing a speedy repetition of the same measure.

We may now take a few passages from the Address referred to, which is the first of the pub. series:

The *Equitable So.* has now withstood the trials of time and experience for more than 30 years, and is certainly become the most extensive and important of all the institutions of the same kind in this or in any other country. *It is, I believe, the only So. that has been uniformly guided in its practice by calculation; and the success and credit which it has attained sufficiently prove the wisdom of this conduct.*

When the prems. were first reduced, in the year 1776, it was in consequence of a very minute investigation into the real state of the So., by computing the values of each pol. of assu. and comparing the whole amount of these separate values with the cap. of the So. at that time.

In the year 1786 an investigation similar to what had been formed in the year 1776 was carried into execution; the result of which was found to be so favourable to the So. that the £15 p.c. which had been charged upon the prems. in 1782 was taken off, and the terms of assu. were reduced to their present state. I need not observe that in each of these two last periods compensations were made to the members then existing for the higher prems. which they had hitherto paid, compared with those to be taken in future, by increasing their claims in proportion to the number of ann. payments which they had previously made.

In the year 1791 a gen. view of the state of the So. for the 5 preceding years seemed to justify a

further add, to those claims; but this measure was adopted with caution, till a more thorough investigation should determine the extent of this and the former add.

In the present year this investigation has been completed, and it appears that a 4th add. may now be made, without endangering the permanence of the So. This matter has been ascertained by a *separate computation of the present increased value of each pol. of assu. existing in the So. on the 31st Dec. last*, in consequence of the add. now proposed, and also in consequence of the three former add. It would indeed have been highly imprudent to have ventured upon any further add. without such a minute inquiry; for no person, however skilful, could have pretended to know its extent by any other method; *nor can it ever be safe to substitute conjecture for inquiry in cases of this kind.*

I have in more instances than one been a witness to the fatal consequences of this delusion, where the sos. confiding in the magnitude of their cap. [Life Fund], without having any regard to the magnitude of the claims which a few years would bring upon them, have indulged themselves in the belief of their growing prosperity till their ruin has become inevitable. I am happy, however, to think that while other sos. have begun in error and ended in disappointment, the determinations of this So. have hitherto been so temperate and prudent as invariably to improve its credit and usefulness. It is my earnest wish that it may always proceed with the same circumspection; and though I believe there is no reason for apprehension from the present members, yet it is possible, however flourishing the So. may be, to entertain too high an opinion of its wealth, and in consequence to adopt measures which may endanger its security.

I am ready to acknowledge that the ann. difference between the claims and the premis. has been much greater than the calculations supposed it to be, and that the surplus stock of the So. has by this means increased very considerably.

Since the year 1776 the premis. have been reduced more than a quarter; and if the add. now proposed be adopted, the claims upon all the assu. of that year will be increased 69 p.c.: those upon assu. made in the year 1770 will be more than doubled, and those of an earlier date increased in a still higher proportion.

These are advantages which none of the persons to whom those assu. belong had the least reason to expect, and which no other so. of the kind has ever procured for its members. They exceed in an infinite degree any surcharge of prem. which they can possibly have paid, and arise from causes to which they have only contributed a part; for the assu. which have expired, or which have been cancelled, during the last 20 years must be considered as forming a very large proportion of the profits of the So.

It is true that the prob. of life among the members have been considerably higher than in the T. from which the premis. are computed; and while the same care is used in admitting none but good lives to be assu., there can be no doubt of their continuing to be so. This is a perpetual source of profit, and possibly in some future time may enable the So. still further to increase the claims on its assu. But it is necessary to proceed with caution. A measure once adopted cannot be recalled without injuring or perhaps destroying the credit of the So.

What has been done in former years, together with what is now proposed to be done, is of much greater magnitude than is generally imagined. The mere add. of 1 p.c. to the claims last year increased the sums assu. about £90,000, and the present value of the assu. above £38,000. The add. of 2 p.c. proposed to be made in this year will increase the sums assured £240,000 nearly; and the present value of the assu. above £98,000. Both these add., in conjunction with the two former add. in 1781 and 1785, will in the whole increase the sums assu. above £355,000, and the present value of the assu. £150,000 nearly; which may be considered as so much diminution of the surplus stock of the So.

The bare recital of these facts will, no doubt, abundantly convince every person that it would not be prudent to exceed what is proposed at present. But I ought to observe at the same time (and I do it with much pleasure) that if the So. confines itself within the limits now proposed, it will not only be perfectly secure, but still continue, though with a retarded progression, to increase its surplus. *I hope the time will never come when the ann. profits of the So. shall entirely cease.* It is necessary for its credit and security that these should continue; and it is to be wished that all future measures, like those which have hitherto been pursued, may be directed no further than to moderate those profits in such a manner as that the members may derive a due share of advantage without endangering the expectations and property of those who shall succeed them.

I cannot conclude these obs. without expressing my decided opinion, that it will be always advisable for the So. to continue its present terms of assu. unaltered. This measure is rendered partly necessary by the add. which have been successively made to the claims. I must also add that in all circumstances of the So. the preservation of its cap. sacred and inviolate is indispensable. On this foundation rest its security, its credit, and its prosperity; and should events hereafter prove so favourable as to admit of further advantages to the members, it is impossible to devise a more safe, equitable, and beneficial method of apportioning them, than by increasing the claims in the manner which has hitherto been uniformly adopted.

The surplus ascertained to exist at this date was £302,000, of which £99,000 only was divided, in the form of an add. of 2 p.c. on the sums ins., which increased the total amount of ins. from £2,976,476 to £3,089,335, or by £112,859, being in the ratio of 1 in 26. The bus. had more than doubled during the last 5 years.

New bye-laws were enacted on 26 March. Pol. might be executed by 2 instead of 3 Trustees. The staff was increased. Pol. might be issued for ins. not exceeding 1 year in duration without waiting 8 days for inquiry. 5 Sept.—Future auditors to be elected only out of members entitled to vote at gen. courts; only to remain in office a year, and not to be re-chosen until after expiration of 2 years. £10 10s. to be divided among auditors for each audit. President and directors to receive £1 1s. for attendance at every meeting of court of directors.

1795.—In the course of this year a further add. of £1 p.c. was made on all ins. of an earlier date than 1795. Mr. W. Morgan says hereon:

A few insatiable members (whose representatives have long since received the claims on their decease) maintained in the gen. court that these add. might be repeated at equal and even shorter intervals. Assertions so absurd of course met with very few supporters, nor was I much disappointed in my expectations in not having succeeded in convincing those persons who maintained them. Still however, though the reasonable part constituted a vast majority of the So., it is difficult to say how far the most reasonable may be influenced by their own immediate interests: and therefore I determined in December, 1795, once more to address the gen. court on the subject of these frequent add. to the claims; and to illustrate by different computations the certain effects of them in destroying the surplus, and ultimately the existence of the So.; and I had the satisfaction of witnessing the impression produced by these computations, in the unanimity with which a bye-law was passed, by which, etc.

The bye-law in question was :

Ordered, that no motion shall be received *in future* for increasing an allowance to be made to claimants, or for any other mode of distributing any part of the funds or profits of the So. amongst its several members, unless notice of such intended motion shall have been given at a general court previous to that at which it shall be formally proposed, and such notice shall have been promulgated by adv. in some of the public newspapers by order of such court. And that no resolution shall be binding which shall be made in that behalf, unless *four-fifths* of the members having votes in gen. courts of the So. who shall be present at the court whereat such order shall be made, shall be consenting thereto.

A like notice was to be sent in the circular letter to members entitled to attend the gen. courts.

This law (says Mr. Morgan) opposed an effectual guard against the precipitate adoption of any improvident measure for the distribution of the surplus stock, and with the exception of two or three imprudent motions, discouraged all attempts of the kind.

There was another bye-law (June 4) to the effect that no return in respect of forfeited pol. should be made until 2 gen. courts after that at which the petition was presented.

The Address of Mr. W. Morgan on this occasion (3 Dec. 1795) contained the following passages :

The measures which have hitherto been pursued by this So. in regard to the disposition of their surplus stock have in general been temperate and secure; and *were it certain that the same moderation would always guide them in their future determinations, it would be unnecessary to offer any obs. which might induce them to change their plan.* But it must be remembered that this, like all Sos., is composed of a transient body, which is perpetually changing, and that however well disposed the present members may be to persevere in that temperate course which has raised this So. to its present eminence, yet that other members may succeed with very different ideas and intentions. It is indeed hardly possible to contemplate the accumulating stock of the So. without apprehension. The ann. add. of thousands to a cap. which already exceeds the best part of a *million*, though absolutely necessary to discharge the immense demands which must hereafter come upon the So., will very naturally lead the uninformed to entertain very extravagant and dangerous opinions of its opulence. The continued accession of new assu., which unavoidably produces a continued add. to the ann. savings of the So., will also serve to increase the delusion and the danger; and if there should be the same accession for a few years longer, the cap. must increase to such a sum as will not only mislead the ignorant, but probably have the more alarming effect of awakening the passions of the covetous and self-interested. I do not know that a much better method can be devised of making all the members to part in the profits of the So. without endangering its security than that which has been repeatedly adopted during the last 14 years. By increasing the claims, not only the object of the ins. is promoted in the best manner, but the surplus stock of the So. is diminished so gradually as to excite no immediate alarm by the sudden reduction of that cap. on which its welfare and safety depend. *But on the other hand, it must be confessed that though this measure, when employed with discretion, is both safe and eligible, yet that the very circumstances of its being so gradual and remote in its consequences may, by producing its too frequent repetition, render it ultimately more ruinous in its consequences than any other.* I have often heard it observed in the course of a year or two after an add. has been made to the claims, "that the So. is now getting richer again, and that it can well afford to make another add." I am always grieved and alarmed at obs. of this kind, as they generally proceed from an entire ignorance of the magnitude of these add., and of their *certain*, though distant effect in reducing the cap. of the So. Were a new add. to be *annually* made to the claims for the next 10 or 15 years, the stock of the So. would still go on to accumulate, and its profits would appear to be very little diminished; but the more advanced age of the members must hereafter inevitably produce a season of more rapid mort., when those add., which were not felt at first, will operate so powerfully in reducing the cap. as to render it very soon insufficient to discharge the demands that crowd upon the So. . . .

This position he illustrated very clearly by showing how the claims would work out in a So. consisting of 4000 members, entering and dying off as indicated by the *Northampton Table*. He added :

I have frequently on former occasions expressed my hope that the *ann. prem.* might never be reduced lower than they are at present; for this would be depriving the So. of one of the chief sources of its wealth, and next to its cap. of the firmest foundation of its security. Nor does it appear reasonable (which would be the consequence of such a measure) to admit new members to an equal part. of the profits of the So. with the old members, from whose ann. payments these profits have been principally derived. . . .

The add. made this year increased the sums ins. from £3,904,685 to £4,384,446, or £479,761, being in the ratio of 1 in 8.

1797.—At this period a circumstance was occurring which had an effect upon the apparent prosperity of the So., and might (under other conditions) have had an effect upon its real prosperity. The investments of the So. were then made almost exclusively in Government securities. These were rapidly declining in price; the effect on the So. is shown in the following facts. In 1795 the accumulated fund of the So. consisted of £462,000 in 3 per cents.; and £140,000 in 4 per cents. Their value at the then price worked out at £442,400. On the 31 Dec. 1797, the Fund consisted of £510,000 3 p.c. stock, and £205,000 4 per cents., together £715,000; *but their value at the then price was only £374,950.* Thus, although the par value of the securities was increased by £113,000, the market value was decreased by £67,450 in about 2 years. We must anticipate by saying that about 1824 a reaction took place in favour of the So. on a greatly extended scale. (See 1825.) [CONSOLS.]

1799.—It was again in contemplation to seek some further division of surplus; or as Mr. W. Morgan puts it: In the year 1799, when the finances of the So. had been suffered to improve without interruption during the 7 preceding years, it was resolved that previous to any measure which it might be thought proper to propose in the year 1800, the state of the So. should be submitted to an investigation similar to those in the years 1786 and 1792. This investigation was commenced on the close of the year. It was found that

the So. on 31 Dec. 1799, consisted of 5124 members, was possessed of an accumulated fund of nearly one million sterling, and had a surplus of £484,000.

1800.—By the 24 April the investigation into the position of the So. at the close of the preceding year was completed. The surplus we have seen was £484,000. In order to ascertain the effect of a further add. to the sums ins. on this surplus, the present value of £1 p.c. added to each pol. for every payment made prior to Jan. 1800, was calculated and found to amount to £129,000 nearly. It was therefore proposed to double this rate of add., which still left £225,000 of the surplus to accumulate for the benefit of those who should survive to the next investigation.

At the gen. court held on the day above named, Mr. W. Morgan again delivered an Address, from which we take the following :

From the period in which I was first chosen to my present situation the accounts have been so arranged as to enable me, in every year, to determine, with sufficient precision, in what degree the decrements of life among the members compared with those in the T. of obs. from which the prems. are computed have or have not been favourable to the So.; and the following statement contains the result of an ann. experience of 30 years :—

From the age of	10	to	20	they have been as	1	to	2
"	20	to	30	"	1	to	2
"	30	to	40	"	3	to	5
"	40	to	50	"	3	to	5
"	50	to	60	"	5	to	7
"	60	to	80	"	4	to	5

By this statement it appears that in every period the prob. of life are higher in the So., or, which is the same thing, the number of deaths is less than those in the T. which is made the foundation of its whole practice, and that at all ages taken together these prob. are in the ratio of 3 to 2. The So. therefore for the last 30 years has only paid 2 claims where the tables supposed that 3 would become due : a circumstance which in an inst. of this magnitude would of itself be sufficient to estab. the accuracy of the present accounts.

Speaking of the sources from which the surplus had been derived, he said :

Besides the advantages derived from the higher prob. of life in the So., other causes have also concurred in promoting its success and prosperity. The prems. required at its first estab., and which were continued for 19 years, were in most cases twice as high as they are at present; while the prob. of life appear to have been equally favourable in every period. A charge so far exceeding the risk incurred must necessarily have created a large surplus; which has been rendered much more considerable by the accumulations of compound int. during a term of near 40 years. And even when the So. in 1782 adopted the new T. of obs. from which the present prems. are computed, it was determined that the computations should be made at a rate of int. much lower than that at which it has always improved its money; so that the same cause still continues to operate, though undoubtedly in a much inferior degree.

Another, and by no means inconsiderable source of profit, is the great number of assu. which from neglect or ignorance are ann. forfeited to the So. Nay, so numerous have these forfeitures been in the early periods of the So. that I do not believe *one-half* of the assu. which were made during the first 25 years for the whole of life have been either continued until they became claims, or even surrendered for a valuable consideration. In add. to these, other causes might be enumerated, which have also greatly contributed to the flourishing condition of the So. But no further arguments can be necessary either to explain or support a fact, which, I trust, has been so far demonstrated as not to admit a reasonable doubt of the existence of it.

Considering the perfect security derived from the great cap. of the So., and that all the present and future members are admitted into a parti. of every advantage arising from its estab. success and the accumulation of its surplus, is it possible to imagine an inst. more useful and beneficial? or one whose conduct has been more liberal or disinterested? Strange however as it may seem, *there is much reason to doubt whether any other consideration than that of the cap. of the So. has had any great effect in increasing its bus., or in raising its credit in the world; and whether the ridiculous idea of a call to supply deficiencies has not deterred as many as the hope and prospect of future advantage has added to the So.*

Next, turning to the question of the provisions of the Deed regarding the mode of ascertaining the surplus, and the periods of distribution, he made the following interesting remarks :

The estab. of this So. originated from a plan which had been proposed and was founded on T. of prem. which had been computed by two mathematicians of unquestionable knowledge and abilities. But those who formed its constitution, or D. of Sett., appear to have been men of a very different description. Would any person in the least acquainted with the subject have proposed to divide the profits among the members in one year, or to call upon them to make up the deficiencies in another? Had this been done, the So. must always have been kept in a state of infancy. It could have possessed little or no capital; nor would it have been possible that an inst. so crippled and debilitated could ever have risen to its present magnitude and importance. Happily however this absurd method of liquidating the accounts of the So. has never been adopted. Its growth has neither been checked, nor its security endangered by an *immediate* distribution of any part of its stock; and all its consequence and prosperity may be fairly attributed to this circumstance. Nevertheless it cannot be denied, that the measure of making add. to the claims, which has very properly been preferred to that of the immediate division of the surplus, will ultimately lessen the cap., and so far diminish the security of the So. This is certainly an objection which cannot be entirely obviated; but if these add. do not recur too often, and are adopted with very great caution, perhaps the constitution of the So. does not admit of a plan which is liable to less danger and difficulty.

From the conduct and circumstances of this So. it will be readily perceived that it is much easier to estab. than to provide for the future man. of such an inst. The mere computation of the prems. of assu. is a very subordinate work, and by the aid of those rules which have been pub. by different mathematicians, may be performed mechanically, without the least knowledge of the principles on which they are founded. But what signify those prems., however correctly computed, if no means are provided for ascertaining, at proper intervals, the real state of the inst., and for disposing of its profits without endangering its security, either by a direct or an indirect invasion of its cap.? Had this So. been so constituted, or, in other words, had its whole plan been formed by persons properly acquainted with the subject, we should not have been reduced to the necessity of repeatedly breaking this one of the fundamental laws, in order to preserve it from destruction. Can anything be more absurd, or betray greater ignorance, than to propose an *ann. profit and loss account* in a concern of this kind; or

to regulate the div. or the call by the success or failure of each year? From the very nature of such an inst. this is impracticable; but particularly in the early period of its existence, when the small number and short continuance render it utterly impossible to form any accurate judgment of its profit or deficiencies; and even when many years have elapsed after its estab., the real state of its finances can only be investigated at distant periods; for, exclusive of the immense labour of such an investigation, *the events of one year vary so much from those of another, that no general conclusions respecting the affairs of the So. can be safely deduced from the experience of so short a term.* In this So. indeed the number of lives is now so great as to render the decrements in every year very nearly the same. *But even here, from the great difference in the sums assu. on each life, the amount of claims is so uncertain that it shall often happen that events prove peculiarly unfavourable to the So. in a year which has been attended with no uncommon degree of mort.* This was particularly the case in the years 1796 and 1797, when the claims, though nearly equal in number, have fallen chiefly on the large assu., *increasing to double their amount in the two preceding years.* On every consideration, therefore, the idea of an ann. div. arising from the bal. of the So.'s accounts in each year should be for ever abandoned; and since the distribution of no part of the profits, or rather of the cap. of the So., ought to be hazarded without a minute investigation of the real state of its affairs, it is evident, from the length of time which the present computations have required, that such a distribution, so far from being ann., can only be repeated after long intervals of experience and success.

When I addressed the court in the year 1795 (which I then intended to have been my last appeal to the So., not foreseeing the magnitude of the present occasion), I endeavoured to point out the great error of considering the mere accumulation of its cap. as an unequivocal proof of its prosperity; and particularly insisted on the danger of being misled by this and other appearances, equally fallacious, to make too frequent and liberal add. to the claims. The result of the present investigation points out this danger, and confirms what I urged at that time in the most striking manner. An add. of £2 p.c. to the claims, which, in 1793, increased the amount of the sums assu. about £220,000, and diminished the cap. of the So. about £98,000, will now diminish this cap. 3 times as much, and increase the amount of the sums assu. about *half a million!* And if this add. be repeated at another 7 years, it will then be found to produce a still more formidable effect. *No profit can keep pace with such quick and increasing demands upon it;* and the very existence of the So. requires that every future repetition of them should be fixed at periods much more distant from each other.

At a gen. court held 8 May succeeding, bye-laws were made as follows:—1. Ordered, *That a careful investigation of the value of each pol. of assu. be repeated once in 10 years.* 2. *That in future no addition be made to the claims, nor any other mode of distribution of the profits of the Society be adopted, without such investigation previously had.* 3. *That the addition to be made to the claims do not in any instance exceed in present value two-thirds of the clear surplus stock of the So.*

1802.—2 Sept.—New bye-laws as to forfeited pol. Qualification for directors elected from persons becoming members after this date £2000 whole-term.

2 Dec.—New regulations as to cow-pox.

At this date no ins. was granted on lives over 67; nor, we believe, has this limit ever been departed from.

1803.—1 Dec.—Bye-law that no motion be received at any future gen. court, “which may in its tendency affect the cash of the So., unless notice shall have been given at a previous gen. court.”

1804.—The accumulated funds of the So. consisted of £1,910,000 Gov. stocks (par value) and £403,820 on mortgages. Total £2,313,820.

1806.—The salary of the Act. increased from £600 to £800 p.a.

1807.—3 Sept.—The qualification for director increased to £3000 whole-term ins., “with an exception to such persons who are already become members of the So.” The qualification to attend and vote at gen. courts increased to £1000 whole-term ins. A like qualification for auditors—to apply in each case to future members only.

1809.—Another investigation, the first *decennial* one, was completed. The surplus far exceeded anything in the previous experience of the So., being £1,615,940. An add. of £2 10s. p.c. for each prem. paid since preceding investigation was made to the sums ins.—the *present value* of which amounted to £975,224; but as this was less than *two-thirds* of the surplus, the limit which had been fixed, a *prospective* bonus was declared at the rate of £2 p.c., to vest in respect of each prem. paid on old pol., and after the 6th ann. prem. in the case of new pol. effected after this date. These prospective bonuses to cease in 1820, by which date a further investigation would be made. The sums ins. became, by the add. now made, increased from £8,024,000 to £10,118,571—or by £2,094,643—or in the ratio of 1 in 4.

Mr. W. Morgan says in his *View*, etc., “During the interval between 1800 and 1810, events had proved particularly favourable to the So.”—as indeed was most clear from the figures already quoted. In his Address on this occasion (9 Dec. 1809), he said:

During the last 10 years the bus. has been so extended, and the cap. so enormously increased, that the So. has become one of the most important, and, if rightly directed, cannot fail to prove one of the most beneficial inst. that have ever been formed in this country. The present state of the So. affords ample proof of the prudence and wisdom of those measures which have hitherto been adopted and pursued in the management of its affairs; and it is with the view of *urging the necessity of continuing in the same temperate course*, that I am once more induced to solicit your indulgence while I offer a few obs. on the accounts which are now laid before you.

The accumulation of cap. which has taken place since the last investigation so far exceeds its increase in any former period that, were this to be the only criterion by which the state of the So.'s affairs was to be determined, there could be little doubt either of its possessing an immense surplus, or of the expediency of having recourse to more frequent distributions of it. But in an inst. of this kind, an increase of cap. is by no means an unequivocal proof of prosperity. While millions are added to the claims, a proportionate fund should be provided for the future payment of them; and it is only by comparing the one with the other, and determining the excess or deficiency of the ann. surplus in the latter, that any correct idea can be formed of the real state of its finances. It should be particularly remembered that were the So. limited even to its present number of members, the cap.

should continue to accumulate for more than 60 or 70 years to come; but if there be such a constant accession of new members as shall increase the number at the end of every year, the term of this accumulation will be extended to an indefinite period, and the magnitude of the cap. ought to be regarded principally as a proof of the magnitude of the demands which must hereafter come upon it. Since the investigation in 1800 the number of ins. has increased to more than 7300, and the sums assu. from £3,900,000 to more than 8 millions, exclusive of the add. which have been made to them. Is it surprising then that the stock of the So. should have increased in the mean time with an accelerated progression? Had not a single assu. been made in the last 10 years, the stock must have gone on to increase (though not in an equal degree), or the So. would now have been hastening to ruin. We should therefore be on our guard against suffering ourselves to be deluded by an immense cap. into extravagant notions concerning the wealth and prosperity of the So. The accumulation indeed has been greater than is necessary to provide for any future contingency, and will no doubt admit of being retarded in its progress by having a part of it appropriated to the benefit of the present members: but there are limits which must not be exceeded; and the danger is always increased when these are overlooked or believed to be at too great a distance.

There are two classes of persons (of very different descriptions indeed) who seemed to wish that the investigations were made at shorter intervals. I mean the very old, and the new members: the former from the fear of not surviving a period of 10 years; the latter from an eagerness to partake of profits from which they have never yet derived any benefit, and towards which they have contributed but in a very small degree. Happily the liberality and good sense of the great majority have hitherto succeeded in quieting the fears of the one, and checking the impatience of the other, and thus in promoting ultimately the real interests of both.

He then reviewed the effect of the bonus add. already made, and proceeded:

It should be remembered that the orig. and indeed the only intention of this So. was to secure the payment of a certain sum on the death of the assured, and that the prem. were computed solely with that view, and not with the remotest idea of any further advantage. I am sorry, however, to observe that other views have lately been cherished, and that many have been induced by the great wealth and prosperity of the So. to assu. their lives with the most extravagant hopes of benefit to themselves and families. It will, I am afraid, be very difficult to satisfy the expectations of such persons; and I shall despair of leading them to entertain more just and sober opinions, if what I have already said upon the subject shall fail to produce this effect. It is very prob. that the term at present appointed for the investigation of the affairs of the So. may appear rather long and perhaps discouraging to some of the older members; but they should recollect that every add. to their claims is much more valuable than it can be in the case of the younger members, and therefore if the prob. of their participating in any future division is less, the amount of it, should they survive the period, is so much greater as to make their expectations as nearly of the same value with those of the younger members as circumstances will admit. It is, I believe, impossible to devise any method of giving each member his exact share of the profits of a So. which is always open for the admission of an unlimited number of persons to partake of them. From every consideration which I have given the subject, I am inclined to think that with the present constitution of this So., the measures hitherto adopted, if pursued with due caution, are, upon the whole, the most safe, equitable, and beneficial to all its members.

During the long term of 35 years I have witnessed with uniform pleasure the progress of this So. I have seen its members gradually increase from 730 to more than ten times that number; the amount of its assu. from £230,000 to more than 8 millions; and its cap., which consisted of £33,875 stock in the 3 per cents, accumulating to a sum which, if converted into the same stock, would exceed £4,330,000. But what is of much greater consequence, its profits, in the mean time, have kept pace with the extended growth and importance of its concerns, and, diverted by no channel of private interest or emolument, have been appropriated solely towards promoting the general good of the whole. It may well be asked—Whence proceeds this unexampled prosperity, and to what causes is to be attributed the success of a So., which boasted of no cap. at its first estab., which beginning in obscurity with the humble contributions of a few individuals, held forth no particular advantages to any of its members, nor ever protruded itself into public notice by a single advertisement in favour of itself? To these inquiries I have already answered in my former Addresses to the gen. court, nor shall I attempt to enlarge upon them at present.

It transpired that the sum of £72,600 had been paid during the decennium for *sur-rendered pol.*; and that above £35,000 had been paid during the preceding 4 years for *income tax*. During this year the staff of the So. was increased by a special vote, "by reason of the increased bus."

There was pub. this year: *Address by Mr. W. Morgan, the Act., to the Members of the So. for Equitable Assu. on Lives and Survivorships at a Gen. Court, holden the 7th Dec. 1809.* Also: *Second Address delivered at a Gen. Court holden Dec. 19, 1809.* This latter we have not met with.

1810.—23 Jan.—New bye-law, that the right of being summoned to and voting at any gen. court as to all persons becoming members after 21 Dec. 1809, be limited to persons ins. for not less than £2000 whole-term, and not till expiration of 5 years' membership. Qualification for directorship increased to £5000, and eligible only after 5 years' membership. 6 Sept.—Special bye-laws as to prospective bonus add. See sub-heading *Surplus*. 6 Dec.—Special bye-laws as to *Days of Grace*.

The new pol. issued this year were 1045, yielding in new prem. £58,127.

Mr. Francis Baily, in his *Doctrine of Life Annu.*, etc., 1810–13, speaks of the *Equitable* as "truly deserving the name which it has assumed: it being certainly one of the most equitable, as well as the most important of all the societies that have ever yet been formed for the purpose of granting assu. on lives." Regarding its bonus scheme, as then existing, he said: "When it is considered that this reserved third is continually improved at int., to the end of the next period, for the use of all the members, and then merges into the gen. stock to be again divided, it will appear that a person ins. in the *Equitable* So. in its present established state (with its reserved third in abeyance) receives nearly the whole of his share of the current profit of the concern."

1811.—The new pol. issued were 776, yielding in new prem. £45,835. The lives ins. at this period ranged from 30 to 45 years of age.

1815.—We now reach another most important event in the hist. of the So. "*The So.*

continued to increase to such a degree (says Mr. W. Morgan) as to excite an alarm for its safety, from being rendered unmanageable by its magnitude, and the extent of its concerns. The directors, therefore, about the year 1815, took this matter into their most serious consideration, and with several of the more sober-minded in the gen. court, were clearly of opinion that some measures should be devised to check the too rapid accession of new members, and to prevent them, by their unlimited and overwhelming number, from absorbing the greater part of a surplus to which they had never contributed." What followed he proceeds to tell us :

By the desire of the directors, I laid before them two plans for this purpose. The first, being deemed impracticable without an Act of Parl., was declined. The other, limiting the number of future participators of the surplus at one and the same time to 5000, . . . was approved and recommended to the gen. court, who, with a few alterations, passed it into a bye-law, which has produced every effect intended by it, and, in my opinion, will ultimately prove to have been the salvation of the So.

This change did not come into force until the following year.

1816.—The changes suggested in the preceding year were only fully developed and brought before the gen. court held 5 Dec. in the present year ; and it will be instructive to follow Mr. Morgan through his Address, wherein the necessity for the proposed change, from the directors' point of view, was enunciated. He said :

When this So. was established in the year 1762, it certainly was not in the contemplation of the founders that it would ever have attained its present magnitude. Of this no doubt can be entertained, when it is considered that almost all the first assu. were made only for the sum of £100 each, and that the whole plan of the So. appears to have been formed upon the same principles with the other little societies which were established about the same time ; most of which, from the want of a timely reform, have long since terminated in disappointment and ruin. Happily for this So., it differed from them in one material respect—its prem. had been computed from the best T. of obs. then extant by an able mathematician ; and all alterations which were afterwards made in those prem., though founded in ignorance, were calculated to render the So. more secure. But these would have been of little avail if the operations employed for ascertaining the surplus had been persevered in, or if the method directed for distributing it among the members had been adopted. The one, by its inaccuracy, would have misled the So. ; the other would have always kept it in a state of infancy and weakness, even if its surplus had been accurately determined.

It is unnecessary to enter into an account of the measures which have been pursued at different times since the year 1776 to correct the errors and guard against the ill consequences of those regulations which related to the distribution of the surplus. The present flourishing state of the So. proves the wisdom of those measures ; and it will be sufficient only to observe, that they have always been adapted to the altered circumstances of the So., arising from the growing magnitude of its concerns, and the increasing number of those who are entitled to a parti. in them. But of all the measures hitherto adopted, none have been more beneficial in their effects, or better calculated to secure the So. from the danger of too sudden an add. to the number of its members, than those bye-laws which were passed in January and March, 1810, restraining all future members from the right of voting at the gen. courts, and from any add. to their claims till the expiration of the 5th year and the payment of the 6th ann. prem. on their respective assu.

The evil, however, although lessened by these laws, has not been entirely removed : the increase of the So., though rendered more gradual, still remains unlimited ; and the management of its concerns must in consequence be ultimately exposed to all the difficulties and dangers arising from the overgrowing number of its members.

Various plans have been proposed at different times to guard against this evil ; but they have generally tended to an alteration of the whole constitution of the So., and required an application to Parl. to carry them into effect. This of itself has been considered a sufficient objection to them, and all of them have consequently been laid aside. It is indeed highly desirable, that whatever laws or regulations are in future adopted, they should deviate as little as possible from the original plan and design of the inst. That the So. has the power of restraining the future members from the parti. of the benefits enjoyed by the existing members during a limited time has been established by the adoption of the bye-laws in 1810. That it has therefore the power of postponing that parti. to a more distant period can admit of no doubt ; nor can it make any difference whether the term is limited to a certain number of years, or is made to depend on contingencies which may either shorten or prolong the duration of it. But if it should appear that this alteration, while it improves the int. of the present members, will render the So. more secure without lessening its usefulness to the public, it becomes not only profitable, but necessary.

It was therefore now proposed that, instead of restraining the members in future form parti. in the add. from surplus, and from the privilege of voting at the gen. courts for the term of 5 years, the following regulation should take effect :

That no assu. hereafter to be made shall entitle the person assured to any benefit or privilege, till the present assu. shall be reduced below a given number ; and that no more persons entitled to those benefits and privileges shall be admitted at one and the same time than are sufficient to complete that number—such admissions to be regulated by the priority of their respective assu., and to be declared at a stated time in every year, when the number of assu. shall have been ascertained that will be necessary to fill up the So. to its full complement.

By this means it was considered that the then members would be benefited by having fewer to participate ; while the So. might "increase the number of its assu. to any extent without the least danger of inconvenience." Mr. Morgan continues :

From a comparison of the number of assu. for the whole continuance of life which have been made in the last 10 years, with the numbers which have been cancelled during the same time, it appears that the So. has increased upon an average at the rate of more than 300 in each year. Hence may be inferred the prob. increase during the next 10 years ; and consequently the inconvenience and danger to which the So. will be exposed from the great number of those who will have a right to share in the man. of its affairs, and an interest to support the premature division of the surplus.

Were the admission of future members to depend solely on the deaths of those already assu., the period would perhaps be postponed too long : for according to the prob. of life in the So. during the last 45 years, not 1 in 60 will die in each year. But the reduction in the number of assu. by forfeiture and surrenders will, agreeably to the experience of many years, be so much accelerated, that the term, were they limited to half their present numbers, will not be very considerably prolonged beyond the period allotted by the present bye-laws of the So. These regulations therefore will prob. have little

or no effect in preventing the So. from going on to increase as it has done of late years. The prospect, however remote, of part. in the profits of an inst. possessed of such an immense cap., will always secure a preference; and the care thus taken to guard against the improvident distribution of that cap., instead of retarding, must rather accelerate the increase, and add to the credit of the So.

By the restrictions now proposed, the danger arising from too great an accession of future members, in proportion to the members now existing, will be avoided; for the number of those admitted in each year will be so small in comparison with the number of remaining members, and in consequence their increase will be so gradual, that long before they constitute a majority of the So., they will themselves have become members whose interest it will be, like that of their predecessors, to guard against the adoption of any improvident measures.

Of the various other points touched upon we need only mention one or two. The prob. of life in the So. continued to bear the same ratio to those in the T. that they had done for the past 40 years. In reference to the add. to the pol. from the surplus at various periods of the Society's hist., it was stated that up to 1800 these had not exceeded £4000 a year; that from 1800 to 1805 they amounted to more than £16,000 a year; while for the then last 5 years 1810-15, they had amounted to nearly £70,000 p.a.: hence the necessity for some limitation. Finally:

I cannot conclude these obs. without expressing my hope that no person will so far misunderstand me as to suppose that I wish to infuse any alarms into the minds of the members respecting the *present* state of the So. On the contrary, there is every reason, as I have already obs., for congratulating the gen. court on the uniform progress of its success and prosperity. My apprehensions arise, not from a *retrospect* of the measures which have been pursued—for no evil has yet been incurred by them; but they arise from looking *forward* to the measures which may hereafter be adopted, when a new interest may prevail over the prudence and discretion which have always distinguished the resolutions of this So. . . . It is obvious, therefore, that the rules and regulations which were well adapted to its circumstances in an infant state may now have become altogether impracticable. On this ground the present resolutions are proposed, as the best means of securing and improving the interests of the present members, and in *due time* the interests of those who shall succeed them.

The principle of limitation of the members to participate in the surplus was adopted at this meeting, and at a gen. court held 19th of the same Dec. it was resolved, and ordered:

That the right or privilege of voting or being present at gen. courts shall not attach to, or be exercised by, any person who shall make his first assu. with this So. after 31 Dec. 1816, unless such person is assu. for the whole continuance of life or lives in a sum not less than £2000, and shall have been so assured for the term of 5 years; nor until the number of assu. existing in the So. prior to the time when he became so assured shall be ascertained, in manner hereinafter mentioned, to be reduced to 5000.

A like limitation as to directors, who were to be ins. for not less than £5000 whole-term, and to rank within the favoured 5000; while none were to participate in surplus but the same favoured number. See sub-heading *Surplus*.

A return was to be made on 1st April every year of the position of the privileged class, and of the number required to make up its full complement.

Mr. W. Morgan, in his *View*, etc., pub. 1828, looking back to this period, says:

In my address to the gen. court on the 16th [5th] Dec. 1816, I fully expressed my sentiments on the great importance of this measure, nor have I seen any reason to change my opinion; on the contrary, I am so thoroughly convinced of the value and necessity of it, that I can truly say, in the concluding words of that address, that nothing will give me greater pleasure on quitting my office than the consciousness of having contributed my faithful endeavours in support of it.

The effect of this regulation in checking the influx of new bus. was very marked. For 13 years preceding it the number of new pol. issued had averaged 733. For the 7 years after it they averaged 423 ann., being a falling off of 310 p.a.

In the same year a bye-law had been made, "That the present as well as all future clerks shall be required to give security to the Trustees of the So. in the amount of £1000 themselves jointly and severally with two other securities."

1817.—4 Sept.—Further regulations as to surrender value for pol. in case of suicide.

1818.—5 Mar.—New bye-laws as to any motion having "a tendency to alter any of the existing bye-laws, or to form any new ones, or to grant any gratuity, donation, or annu., or to refund any money on account of forfeited pol., or in any way to affect the property of the So." No such proposition to be debated at the court at which it is orig. proposed; nor be valid until agreed to at 2 gen. courts.

1819.—The period for another decennial investigation had arrived. Mr. W. Morgan says, "The resolution of 1816 afforded such satisfaction, at least to the members then existing, that (with the exception of a very excellent bye-law, passed in Dec. 1817, for the purpose of guarding against either the sudden or the indirect alienation of any part of the cap.) nothing occurred to engage the particular attention of the So. till the next decennial investigation in the year 1819." The valuations had been made in advance, and showed a surplus of £3,200,000—by far larger than any previous surplus. Two-thirds of this surplus was appropriated to the benefit of those members who were insured before 1814, by add. £2 10s. p.c. for every prem. they had paid before 1 Jan. 1820; and the like sum to those ins. between 1814 and 1817, when they should respectively complete payment of their sixth prem. The remainder of the surplus, exceeding £1,000,000, was carried forward. In this manner 8340 pol. participated, and 1310 were excluded. To all ins. of an earlier date than 1771 the add. now made amounted to more than 400 p.c.; and to all pol. of a later date by 20 years they exceeded 150 p.c. It was afterwards found that these add. increased the claims payable on death by upwards of £175,000 p.a.

At this date, out of 913 members living in 1776, only 10 were still existing; and out of 5124 living at the commencement of 1800, only 1500 now survived, or remained entitled to parti.

At the gen. court held 2 Dec. at which the preceding statements were made, Mr. W. Morgan delivered his 6th Address, wherein he said :

I know not to what extent the expectations of those persons may have been lately raised who, viewing the amount of the cap. without having any regard to the immense claims with which it is charged, consider every add. to that cap. as so much add. to the surplus stock of the So. I must however observe to them, there cannot be a delusion more to be deprecated, nor which in the present circumstances would lead to more ruinous consequences. Although the cap. has increased within the last ten years above 3 millions, this of itself affords no decisive proof of prosperity. It should be remembered, on the other hand, that the sums assured have increased more than double that amount—that half the number of the present assu. have been made since the year 1809—that the other half is composed of assu. on lives ten years older than they were at that period, and consequently so much more valuable—that while the number of assu. is ann. increasing, or even while it continues the same without any variation, the stock must necessarily go on to accumulate for many years to come, and that if any measures were adopted to prevent that accumulation, the So. would soon find itself in a state of insolvency.

The great object in all the measures hitherto adopted (and which I hope will always be kept in view) has been to moderate that accumulation so as to make the present members parti. in the profits of the So. without injuring the interests or destroying the prospects of those that shall succeed them. At every period in which the surplus stock has been determined a very considerable sum over and above the value of the add. has been left to accumulate towards providing for the future add., as well as for guarding against unforeseen contingencies. . . .

It is true that the surrenders and forfeitures which are ann. taking place have had a considerable effect in checking the growth of the So.; but these have always fallen short of the new assu., so that from its estab. to the present time, the So. has never ceased to become more numerous. . . .

Referring particularly to the changes of 1816, he says :

In the year 1817 the So. commenced a new era, and the experience of every day has served to prove the wisdom of that measure. Though in the short term of 3 years it could not be expected to have done much in improving the present interests of the members; yet even in this early stage its operations have not been altogether without effect; for had no such measure been adopted, the assu. entitled to the add. would in that case have exceeded their present number by more than 1200. But its benefits hereafter are likely to be much more considerable. Not only will the So. be rendered much more secure, but by confining the future add. to a limited number of claims, these add. must necessarily be increased, and may possibly admit of having a larger proportion of the surplus appropriated to them. Nor are the present members the only persons likely to profit by the late regulations. Although the expectations of future members are postponed, they are not taken away. What they lose by having the accomplishment of their wishes deferred to a later period will be more than compensated to them when they are fulfilled; and if regarded in a proper light, these regulations should be considered as so many precautionary measures, more effectually to guard their interests against the danger arising from the participators in the So.'s surplus at one and the same time becoming too numerous to have their over-sanguine expectations gratified to their full extent, without sacrificing the interests of those who are to succeed them. It is a matter of little consequence to the So. whether its members do or do not increase; nor is it necessary to point out the great benefit which it has produced to the public. The immense cap. which it possesses, and the prospect which it holds forth not only to its present, but to its future members, raises it above all competition, and must ever render it an inst. of the highest importance. From the experience of the last 3 years, the regulations of 1817 appear to have had no other effect than that of rather lessening the number of new assu., which however considerably exceed the number of old ins. cancelled, so that the So. still continues to increase, only more slowly. This is the necessary consequence of such a measure, and was to be expected. But it should be observed, on the other hand, that the So. may now regard its increase without apprehension. With the present restrictions it is in no danger of ever becoming too numerous, or of being composed of a multitude of new members, who, assuring their lives more with the view of present advantage to themselves than of providing for their families, would always be urging an improvident distribution of the So.'s stock. Having often witnessed assu. of this kind, I have on former occasions expressed my dread of them; but I now feel great satisfaction in seeing the So. freed from the danger of ever having their numbers increased too much. It does not appear from the assu. lately made that any extravagant views of this kind are entertained by the persons assu. The great majority of them consists of lives between the ages of 35 and 50. The proportion of the older to the young lives continues the same, and the bus. of the So. goes on in every respect as it has always done—with this difference only—that the average amount of the sums assu. on each life is rather increased, and the ann. average of new assu. is diminished.

It is satisfactory to observe, that in the plentitude of the So.'s wealth the officials were not forgotten. We take the following from the printed minutes of the proceedings of this court. The President read to the court the following recommendation from the court of directors, viz.—“In consideration of the great length of time and close attention necessarily devoted to this investigation by Mr. Morgan, the Act., which comprehends nearly double the number of calculations made in the rep. of 1810, and of the satisfactory and important information which the So. has derived from the completion of it, that it be recommended to the gen. court. to present Mr. Morgan, the Act., £2000 as a compensation for the same.” It was moved and seconded that the said recommendation be now agreed to; and the same unanimously passed in the affirmative.

Another recommendation was read by the President from the court of directors, viz. “That in consideration of the assistance afforded to the Act. towards this investigation, by the late Mr. Morgan, jun., Assistant Act., it be recommended to the said gen. court to make his representative a present of £500.” On which a member proposed, that £1000 be presented to the representative of Mr. Morgan, jun., in lieu of the sum of £500, recommended by the directors, which being seconded, passed in the affirmative.

A further recommendation was then read by the President from the court of directors, as follows, viz.—“In consideration of the additional trouble necessarily produced by the late investigation of the finances of the So., that it be also recommended to the gen. court, to make Mr. Stephenson, the principal clerk, a present of £200, and to the Actuary's clerks, viz. Mr. Lovelock, a present of £100; Mr. Martineau, a present of £75; Mr. Train and Mr. Butler, each a present of £50; and to William Corby, the messenger,

a present of £30." It was then moved and seconded, that in lieu of the sums respectively proposed to be given in the foregoing recommendation, the same should be doubled, which passed in the affirmative.

1821.—Mr. W. Morgan pub. *The Principles and Doctrine of Assu., Annu. on Lives, and Contingent Reversions stated and explained*. This was in fact a 2nd ed. of his work of 1779. The author says:

In the former ed. of this work I gave a particular account of the *Equitable So.*, which being then almost the only So. of the kind, I was induced to enter more minutely into the different methods of ascertaining the real state of that, or of any similar inst.; and concluded with observing, that the accounts of this So. had been lately investigated by each of these methods, and found to be so highly favourable as to justify the measures then adopted. *But on more mature consideration, I have seen reason to change my opinion of those measures; and happily the So., convinced of their pernicious tendency, have never repeated them.* In all the subsequent investigations a more prudent and beneficial course has been pursued. By the method of making add. to the claims, no immediate invasion of the cap. takes place; but the profits are divided so gradually as neither to alienate the cap. too suddenly, nor even to prevent the accumulation of it. The effect also of its operation for the first years is almost insensible, so that the credit and consequence of the So. are not impaired by the abrupt diminution of their cap.; nor is there any danger of such diminution at any future period, provided, as in the case of the *Equitable So.*, the present value of those add. is never suffered to exceed a certain portion of the surplus.

In a "Postscript" to this ed. was given a T., which led to some remarkable results, and which will be spoken of in detail under *EQUITABLE SO., MORT. EXPERIENCE OF*.

It was resolved by the board, and communicated to a gen. court, that any member might surrender to the So., by way of sale, such part of his pol. and add. as might be sufficient for his then requirements, and keep the remainder of the pol. and its add. in force at a correspondingly reduced ann. prem.; and be entitled to proportionate share of present and future profits.

1822.—The directors were empowered to issue pol. with "prems. payable during a limited number of years." A special T. of such prems. was prepared, an abstract of which is given under sub-heading *Premiums* at the close of this art.

1823.—A general statement of the income and expenditure of the So. for the 20 years 1804 to 1823 inclusive was made up by a member and pub. The receipts from prems., etc., during that period were £7,459,802; from int. on investments, £3,742,967—total, £11,202,769. The disbursements for claims and add. during the like period, £5,059,618; surrendered pol. £460,239; for expenses of man. £161,348; for *Income Tax*, £157,513—total, £5,848,718; leaving the excess of income over expenditure, £5,354,051. The investments in 1823 consisted of £8,710,000 Gov. stocks (par value), and £956,236 on mortgages.

The exception in the pol. regarding persons dying of smallpox was removed.

1824.—We reach another epoch in the hist. of the So.—one which threatened as great mischief, although in a different direction from any which had preceded it. Mr. W. Morgan, reviewing the incident historically, speaks of it in connexion with the large distribution of surplus in 1819 as follows:—"Strange, indeed, it would have been if benefits so stupendous had not satisfied the most insatiable; and therefore the unanimity with which these add. were voted is no matter of surprise. *But it is much to be regretted that the effects of these benefits should have been so transitory, and that their magnitude in some instances only served to provoke a more eager desire for still further add.* In the year 1826 [should be 1824], when the mania produced by a fictitious rise in the public funds had given birth to so many wild and ruinous schemes, the So. did not entirely escape the contagion." A Rep. of the Directors, prepared at the time, speaks of the incidents of this period in a far more serious manner, as indeed there was, in our view, reason for doing. But we must take the events in chronological order.

At a gen. court held 30 Dec. 1824, the following resolution was proposed and carried:

That it be referred to the court of directors to consider and report—whether it would be advisable to cease effecting assu. upon the footing of the existing D. of Sett., regulations, bye-laws, and prems.; and whether it would be advisable to form a new Deed and new regulations, to be signed and observed by new members, having due regard to the interest of the present members;—and whether any and what measures would be advisable to be adopted in order to benefit the present members, either by a declaration of additional profit, or by reduction of their prems., or by more frequent rests and additions or otherwise; having regard to the price of the public funds in which the monies of the So. are invested, when the additions are made, and when payable;—and that the directors do state in their rep. the grounds upon which the same shall be founded, together with any other circumstances which might be deemed expedient by the directors to be made known to the members.

The income of the So. this year was £790,052.

1825.—The year opened by the pub. of *Two Letters to the Court of Directors of the Equitable Assu. So. on the Resolution of the Court of Proprietors on the 16th Dec. 1824*. The first of these bears date 11 Jan. 1825, and is signed by four members. Its arguments are in support of the proposition of Dec. 1824; but there is nothing in it worthy of reproduction;—the directors having in their rep. covered the ground. The second letter, dated 14th Feb., asks for a full state of the So., and suggests a form for the purpose. But again there is nothing worthy of reproduction.

A committee of the shareholders operating at this period adversely to the directors—prob. the above 4 gentlemen—consulted Mr. Swann on the legal rights and position of the members.

At a gen. court, 3 March, the directors presented a special rep. on the points involved in the resolution of Dec. and on some others. This document is before us. It is very laboured and diffuse, and we can only notice the leading points in abstract. They (the directors) were of opinion that any departure from the essential principles of the So., as they were to be deduced from the practice existing on the 1st Jan. 1817, would not be advisable, and might, in its consequences, be highly injurious to the permanence and security of the So., as well as detrimental to the members individually. They did not think it would be advisable to cease effecting ins. upon the footing of the existing D. of Sett., regulations, bye-laws, and premis. They did not consider it would be advisable to form a new Deed and new regulations, to be signed and observed by new members. They say: It cannot be supposed that new members would join the So. if the old members were to keep in their hands the entire profit of the new assu. as well as the produce of their accumulations, etc. The directors (they continued) did not mean to assume that the Deed and regulations by which the So. had been hitherto governed were so perfect and complete in all their parts as totally to exclude all possibility of future modification or improvement. Upon the third question, whether any and what measures it might be advisable to adopt in order to benefit the present members, they say: It is important to keep distinctly in view that this So. is in the nature of a partnership, formed by a D. of Sett. and continuing to act or intending to act under it until the 1st Jan. 1817, *when, by universal consent, a new constitution must be taken to have been formed, to consist of two classes of members, the one participating in present profits and advantages, and the other an expectant class, to participate at a future time, and having a contingent interest in growing profits, to accumulate for the benefit of the whole, from the time of the admission of each respective member.* They consider that "a declaration of add. profit" must mean to the old members, as the new ones had not received any profits; and that "more frequent rests and add." would deprive new members of some part of their contingent interests. Also that "a reduction of premis." would prevent the accumulation of surplus, and could not be applied in due proportions to every member. The directors therefore considered they had no power to adopt the proposals.

The directors say finally:

The great and leading principle of this So. has ever been its *equity*: it has persevered for 60 years in a regular course, by which its security and stability have been confirmed: it has answered all its engagements, and afforded greater benefit than any other inst. of a similar nature; and it will continue to do so, if the same prudent and beneficial course is pursued. Why then should any doubts be suggested, any wavering in principle be excited, or any *new plans* of management be proposed, which cannot offer such experience, and which may require to be altered as speedily as they might be adopted? Let us not then lower the dignity or reduce the benefits of the So. by a surrender of its mature and venerable character for any charms which a more modern garb may display.

The resolution which we have reviewed was not the only scheme proposed for modifying the So. at this period. Indeed the report notices the following add. proposals—1. "To make add. in stock instead of money." 2. "For drawing another line, and establishing another class of members; and when all the present members are reduced to 5000, that the whole surplus should be divisible amongst that number, with the exception of half a million, which is to be the then future surplus capital, in which all the members, whether old or new, are to be interested." 3. "For the purpose of realizing the present high price of the public funds in various ways." 4. "By promoting the surrender of pol. or add." 5. "To realize the stock by the surrender of the add., retaining the orig. pol." 6. "By lending money on pol. and add." 7. "By lending money on mortgage to a greater extent than at present, and at a lower rate of interest." 8. "For the regis. of the assignments of policies." The directors opposed all such changes; and their report was received and adopted.

In the report of the directors of which we have just disposed frequent reference is made to reasons further in support of the directors' views which would be given in the Address of the Act. to be delivered at the same gen. court, 3 March, 1825. We turn to this Address, and draw from it the following passages, which give us a wonderful insight into the true position of the So. at this period:

When I addressed the members of this court 5 years ago on the gen. state of the So., I hoped it would have been the last time I should ever have to speak to them on that subject, considering that the many wise regulations that had then been formed for the security of the So., and for the due part. of all the members in its growing prosperity, would have rendered any further addresses on my part unnecessary. But in this hope I am sorry to find myself disappointed. The propositions which have of late been recommended to the consideration of the directors, and which have occupied so much of their time and attention, are so nearly connected with the welfare, and ultimately with the existence of the So., that I feel it my duty once more to address the gen. court; but not without much anxiety and regret, from observing the transitory effect of my addresses on a like occasion. In the year 1795, when the flourishing state of the So. had raised the expectations of the members beyond all reasonable bounds, and led some of them to propose measures which, if they had been adopted, would have left little to encourage the expect. of the present members, I took the liberty of expressing my objection to those measures; and aided, as on the present occasion, by the unanimous support of the directors, so far succeeded in exposing their fatal tendency, as to induce the So. to abandon them altogether. Nevertheless, in the year 1805, the same imprudent measures were again proposed, and the same arguments again prevailed against them. But the eager desire of prematurely sharing in the surplus, though checked at those periods, was not extinguished. In the year 1815 a similar impatience began to manifest itself, which was rendered more formidable from observing that a great proportion of the new members assu. their lives as much with a view of profit to themselves as of securing a provision to their surviving families. This in time would have converted the So. into a

trading co., and in a great measure would have destroyed the benevolent purposes for which it was orig. founded. In order to guard as much as possible against this evil, a bye-law was formed for restraining all persons assured subsequent to the year 1816 from a part, of the surplus till the number of members, etc., etc. . . . [We know what was then done.]

It will no doubt be observed that half the time between each decennial investigation has scarcely elapsed before an impatience for a more frequent division of the surplus has been expressed; nor is it unlikely that the same impatience would not be expressed if the intervals were reduced to a much shorter term; or that persons so disposed would be satisfied with less than a share of the surplus to the last moment of their existence. It is not my intention, nor can it indeed be necessary, to expose the unreasonableness of such a disposition. Had the So. always acted on such principles, the cap., so far from exciting a wish to alienate any part of it, would now, perhaps, have excited an alarm on account of its insufficiency to provide for the demands which must come upon it. I have often endeavoured to convince the So. of the evil consequences of repeating the add. to the claims at very short intervals, and particularly in my Address to the gen. court in 1795; but if a judgment may be formed from the zeal with which a measure of this kind is now recommended, the arguments which satisfied the members in 1795 have either been forgotten, or they have lost their effect in 1825. I am not, however, the less convinced of the accuracy of the computations on which these arguments were founded; and I have further to observe, in confirmation of them, that by pursuing a different course of computation, which cannot well be explained in an address of this kind, it appears that if the intervals were shortened from 10 to 5 years, and the same add. were repeated at each interval, the cap. of the So. would, after a few repetitions, be reduced twice as much in the latter as in the former case. It follows therefore that if these add. be not either lessened in proportion to their frequency, or a *given sum* be not always reserved as a surplus, the older members who partook of the earlier add. would be benefited to the injury of the younger members, and the So. would ultimately be reduced to its orig. state of infancy. But the ann. increase of the cap. has been urged as a proof that it will not only admit of larger and more frequent add., but also justify the adoption of such measures as shall have a more speedy effect in reducing it. In answer to this it should be observed, *that more than one-third of the present members have been admitted since 1816, and above two-thirds of the whole number since the year 1809.* The prems. therefore on these assu. ought to exceed the claims upon them for many years to come; and consequently, were the ann. income of the So. not to exceed the ann. expenditure, no sufficient fund could possibly be formed to provide for the payment of those claims as they increase hereafter with the increasing ages of the members. From looking merely to the amount of the cap., without having any regard to the claims for which it is responsible, many persons are led to form very wrong conclusions respecting the opulence of the So. *Even at its present high price, the stock in the public funds, together with the sums laid out on mortgage, does not equal half the sums assu., including the add. already made to them.* From what source, then, are the millions by which the cap. is exceeded, and the millions of future surplus anticipated by these persons, to be derived, if the ann. accumulations are to cease, or even to be prematurely checked in their progress?

The great add. made in the year 1819 have increased the amount of the claims so very considerably that the ann. prems. of late have been barely sufficient to provide for them; and as one-third of those prems. are received on account of ins. made since the year 1816, it is evident that without the accession of new members (whose claims have as yet been very trifling), there would have been little or no accumulation; so that if any measure were now adopted to appropriate any part of it exclusively among those who have been assured prior to 1817, it must be by depriving those who have been since assured of their share in a surplus which has been partly formed by their prems.

The events of the four preceding years have by no means been so particularly favourable as to justify a departure from the estab. rules of the So. The decrements of life have been much the same as they have always been—in the last two years indeed they have rather exceeded their usual number; *and the rise in the public funds, so far from benefiting the So., has reduced its ann. income £10,000 nearly.* Considerable sums also, laid out on mortgage when the 3 per cents. were at 70, have lately been repaid and invested in the same stock at 96 p.c.; and the excess of the ann. income above the expenditure having likewise been laid out in the purchase of the same stock, not only destroys every hope of advantage from a further rise in this stock, *but renders a loss much more prob. from its future depression.* Were it possible to secure the public funds from ever falling from their present high price, the difference between the value of the So.'s stock in 1820 and its present value might be considered as so much add. to the surplus at that period, and distributed in due proportion among the members—a work, however, which could not be accomplished in less than a year; at the termination of which the depression in the price of stock might, perhaps, render all the operations useless. *What reliance can be placed on the permanent value of a property so fluctuating as the public funds?* Were the peace of Europe disturbed, or were any unfortunate event to take place which would lessen the confidence of the public in Gov. securities, this add. surplus would soon vanish; and it may be well, perhaps, should the mischief extend no further. If the late war, which began with a debt of less than 300 millions, sunk the 3 per cents in the course of it from 97 to 47 p.c., what limit shall be assigned to their depreciation should another war commence, with a debt of 800 millions? Or from what source can the deficiency in the So.'s cap. be supplied, when, in add. to this depreciation, a considerable part of that cap. had been alienated on the vain presumption of its always maintaining its present value! . . . [CONSOLS.]

He then takes up the points of the several proposals which had been made, and weighs them in relation to their influence, from his point of view, on the So. We shall follow him but briefly:

1. [*More frequent add.*] I have already endeavoured to prove that it cannot be carried into effect with any advantage to the present members, without injuring those who, though they have not an immediate, have a rev. int. in the stock of the So.

2. [*Reduction of Prems.*] I have so often insisted upon the impolicy of reducing the ann. income of the So., and thereby of checking the accumulation of its cap., that I shall only observe in addition, that if the prem. of all the present members were reduced at any given rate, such a reduction, so far from being equitable, would be highly unjust, particularly to old members, as the exemption of any ann. payment during their lives must be of much less value than the like exemption during the lives of younger persons. In other words, this measure would operate in direct opposition to all that is just, by lessening the benefits to old members in proportion to their advanced age, which, it is evident, ought to have the contrary effect of increasing those benefits.

3. [*New Class of Members.*] According to the present bye-laws, I do not see how it is possible to adopt any measures that shall benefit the members admitted before the year 1817, without injuring those of a later date, and violating the good faith and honour of the So. But it has been suggested that some method may be devised for the benefit of the older members, which shall have no effect in diminishing the prospective advantages of the younger members: and for this purpose it is proposed, *when all the present members of every description are reduced to 5000, that the whole surplus then ascertained shall be added to their claims, with the exception of £500,000, which shall be reserved for the benefit of such members as are admitted after that time in common with the 5000 above mentioned.* Though I consider the present mode of reservation to be the most equitable, and there-

fore requiring no alteration, I shall only beg leave to observe that if it be determined to adopt this proposition, it must be done on condition that the reserved sum does not exceed one-third of the surplus.

4. [*Surrender Values.*] As another measure to benefit all the members of the So., it is proposed to profit by the present high price of the public funds, either by promoting the surrender of pol. and add.; by lending money on pol. and add.; or by lending money on mortgage to a greater extent than at present. With regard to the first proposition, it is proper to observe that the interest of the member in the pol. and its add. is computed at 3 p.c., or, which is the same thing, on the supposition that the 3 per cents. are at par; and that after a small deduction, the value of the same is always paid to him. I know therefore of no method of encouraging the surrender of pol. This deduction perhaps may be omitted, but I am confident that it will produce little or no effect. It seldom happens that any person, without first ascertaining the sum he should receive at the office, attempts to dispose of his pol. at a public sale. With this information he runs no risk in the attempt. On the contrary, he is encouraged to it by the spirit of speculation in a purchaser, without the possibility of losing much if he should not succeed. It would certainly be below the dignity of the So. to enter into a competition in the purchase of its own pol., and a wide departure from those principles of strict computation on which all its measures have hitherto been founded.

5. [*Loans on Pol.*] The . . . proposition for lending money on pol. and their add., besides creating a great multiplicity of complicated accounts, would be in danger of involving the So. in numerous litigations, arising from forfeitures incurred by the non-payment of the int. and ann. prems.; from the difficulty of ascertaining the trusts for which the pol. are a security; from the pol. and add. belonging to two different parties; and from other circumstances which the ingenuity of the law might prob. discover to render this loan far from being a benefit either to the borrower or the So.

6. [*Surrender of Additions.*] The same objections nearly may be made to the purchase of the add. distinct from the purchase of any part of the pol. to which those add. are annexed. Were every member to dispose of them at their present value, no injustice, perhaps, would be done to any part of the So.; but the measure itself would be exactly the same with that of immediately dividing a large portion of the cap., and the very end of gradually reducing it by adding to the claims would be defeated. It is certain, however, that comparatively few members would choose to convert their add. into an equivalent in ready money, rather than suffer them to accumulate to much greater advantage for the benefit of their families; nor would it be just that those who have received the full value of their add. should part in the future surplus in the same proportion with the members who have left their add. to accumulate with the other stock of the So. But the most simple way for accomplishing the purposes intended by these measures has been already provided by a resolution of . . . 1821.

As a means of profiting by the present high price of stock in the public funds, neither this nor the measures proposed for lending money on the pol. are likely to produce the least effect; for if we may judge from past experience, so far from requiring the sale of any part of the stock to provide for the loans or the purchases, it is much more prob. that they may all be very easily supplied from the ordin. ann. receipts of the office.

7. [*Loans on Mortgages.*] The . . . proposition for lending money on mortgages to a larger extent than has hitherto been done at a reduced int. of $3\frac{1}{2}$ p.c., would no doubt secure the cap. so invested from any future diminution, and in some degree realize the surplus produced by the high price of the public funds. It should, however, be observed that lending money at $\frac{1}{2}$ p.c. less than is paid on the present mortgages would render it necessary to reduce the int. on those mortgages to the same rate, and thus lessen the income of the So. about £5000 a year: but a small ann. loss on the interest ought not, perhaps, to be considered of much importance, compared with securing the So. from any loss on the *principal*. On this ground, therefore, it may be desirable that a much larger portion of the cap. should be invested in freehold mortgages, if a sufficient number can be procured, which appears extremely doubtful from the few applications of this kind which have of late been made to the office.

8. [*Classes of Pol.*] In add. to the many propositions which have been presented for the consideration of the directors for regulating the affairs of the So., a plan has lately been communicated to them for ascertaining the surplus cap. by reducing all the assu. into a few classes, and thus obtaining in a summary manner that information which has hitherto been obtained at the expense of much time and labour. Were all the assu. confined to their orig. sums, they might indeed be reduced to a few classes. But in consequence of the add. to the claims at different times, there are scarcely no assu. in all respects alike, and therefore we should have almost as many classes as we have assu., and the task of arranging them would be little less than that of computing their separate values. The repetition of such an investigation every year, when no necessary measure can be founded upon it for several years to come, appears to be a needless labour; nor can it be necessary for any present information, as an opinion sufficiently correct of the progressive state of the So. may be derived from other sources, for some years at least after each investigation.

Finally :

As this is most likely to be the last opportunity which I shall have of addressing the gen. court on a subject which has engaged my attention for half a century, I cannot take my leave of it without expressing my strongest conviction that so long as the measures hitherto pursued by the So. for the appropriation of its surplus are continued, no events can well arise to endanger its safety or impede its success. In a body composed of so many thousand members it is hardly possible that its concerns should not be viewed in a wrong light by some of them, and lead to injudicious motions. In the few instances which have occurred of this kind more prudent councils have uniformly prevailed; and so far from deviating from that wise and temperate course which it has pursued from its earliest existence, the Society on all occasions has been anxious rather to raise new barriers for the preservation, than to form any measures for the premature alienation, of its cap. It would indeed be a matter of severe disappointment and mortification to behold the Society, regardless of those barriers, diverted into a different course. Certainly no recent events ought to have this effect. The cap. must continue to increase with the increasing number and amount of the assu. *The temporary rise in the funds, which has of late so violently inflamed the minds of the public, and generated such a multitude of delusive and visionary speculations, instead of accelerating, retards the accumulation of the surplus in the present circumstances of the So.; and the experience of former years exemplified in the prosperity and credit of the So., far from justifying any new course, affords the strongest motives for avoiding every step that leads to it, and particularly for guarding against the contagion which unhappily prevails at this time, and threatens such serious consequences hereafter.*

The directors, as we have already intimated, were entirely successful in again warding off the threatened mischief. It was, however, resolved that the bonus add. might be sold or surrendered as distinct from the pol. [Sub-heading *Bonus Additions.*]

We have it on the authority of Mr. W. Morgan, in his *View*, etc. (1829), that it was at this period "gravely moved in the gen. court that one million sterling should be immediately divided among the members." This proposition was in view of the large benefits which the So. had derived from the investment of its rapidly growing life fund in the

Gov. stocks, while these were at a lower range of prices than at any other period in their previous (or subsequent) hist. ; and prob. *one million sterling* was not an over-estimate of the advantage which had been thus realized. We have seen, however, that towards the close of the last century the So. had been subject to a loss from the declining prices then occurring [1797]. At a later date in the present century a considerable loss of this character has been sustained. Mr. Morgan adds, "But it is hardly necessary to observe that a motion so preposterous was rejected without hesitation." [1829.]

In a note to Mr. Morgan's 8th Address, delivered 1829 (and pub. in the official edition of the Deed, etc., 1833), he alludes (p. 288) to a "motion made at the gen. court in Sept. 1824, by a member now deceased, for immediately dividing a sum not exceeding *two millions among the then members of the So.*" We believe the former statement to be correct.

There was pub. by Thomas Newell, M.D., *An Address to the General Court of the Equitable So. for Assu. upon Lives and Survivorships*, dated Cheltenham, July, 1825. The writer speaks of "the want of information as to the real state of the affairs of the So. among the members generally." He says of the So. itself, "The foundation remains as it was ; but the superstructure has become towering and unwieldy, its exuberances having arisen from frittering away the orig. D. of Sett. by unwise bye-laws." He adds, "The inconsistency of some of these with the D. of Sett., and probably involving legal difficulties, it would be easy to point out." These passages occur in the preface ; but when we come to the reasoning of the pamph., we find it most lamentably defective. He shows the progressive accumulation of the funds at various periods of the So.'s existence, and finding that the income has always exceeded the outgo,—as, indeed, it must with a largely increasing bus.,—he says :

From this it appears that the income of the So., arising from its premis. only, contrasted with its expenditure, and confirmed by the experience of so many years, is the true criterion by which a judgment should be formed of its present state of prosperity. . . . If the So. should continue to conduct its bus. upon the same principles that it has hitherto done, and new members join it in the same numbers as heretofore, and which they would be induced to do by holding out those advantages (which it appears to me) they are entitled to during their lifetime, their affairs might be carried on, and their credit remain unimpeached, *even though they had no cap. whatever ; nor would the credit of the So. be shaken, were the greater part of its surplus cap. trans. at once to its present members.*

It is useless to occupy more space in following such a writer : yet he took an active part in the discussions of this period, and actually consulted counsel in support of his views. Not a solitary course at this juncture.

The accumulated funds of the So. in June, 1825, consisted of £10,080,000 in Gov. stocks (par value), and £952,000 on mortgages—total, £11,032,000.

In this year there was printed : *Rep. of the Court of Directors on special questions as to Re-organization.* This we have already passed under review.

During this year Mr. Griffith Davies pub. his *Tables of Life Contingencies, containing the Rate of Mort. among the Members of the Equitable So.*, etc. We shall present his T. and an account of the data from which it was constructed under EQUITABLE SO., MORT. EXPERIENCE OF.

In the *Phil. Trans.* for this year appeared a T. deduced by Mr. Gompertz from the data supplied by Mr. Morgan in his work of 1821. This also will be noticed under EQUITABLE SO., MORT. EXPERIENCE OF.

1826.—Mr. Charles Babbage pub. : *A Comparative View of the Various Inst. for the Assu. of Lives*, wherein, besides many statements on the various conditions and regulations of this So.—some of which, as we shall presently see, became the subject of much contention—there was contained a "T. of mort. deduced from the experience of the *Equitable So.*" This T., with the circumstances which led to its construction, will be given under EQUITABLE SO., MORT. EXPERIENCE OF.

1827.—Claims, where pol. were in the hands of personal representatives of the deceased, to be paid 3 months after proof of death. Auditors' fees increased ; directors' remuneration made £1500 p.a.

1828.—There was pub. this year by Mr. W. Morgan : *A View of the Rise and Progress of the Equitable So., and of the Causes which have contributed to its Success ; to which are added remarks on some of the late misrepresentations respecting the Rules and Practice of the So.* This work, as was to be supposed, appearing so soon after considerable controversies regarding the future of the So., excited considerable attention. Not only did the author purport to pass in review all the main events in the hist. of the So.—upon some of which we have already quoted him—but he also gave a chap. to "The causes which have chiefly contributed to the So.'s success," and another chap. entitled "Remarks on some of the late misrepresentations respecting the rules and practice of the *Equitable So.*" Each of these we have brought to notice.

Under "The causes which have chiefly contributed to the So.'s success," the author says :

With the view of greater security, it was determined, at the orig. formation of the So., to assume a T. of obs. which gave the lowest prob. of human life. To the premis. computed from this T. sundry add. were made for imaginary risks at different ages, by which means they were raised in some cases almost twice as high as further experience has proved that they ought to have been ; so that for the first 20 years the So. possessed such an excess of income, that being suffered to accumulate without

interruption, it contributed in a great measure to form the basis of its future opulence. Nor was this accumulation impeded by any extravagant expenditure, nor by the premature alienation of any part of it. On the contrary, the utmost frugality was observed in the man. of the So.'s finances; and the only idea then entertained in making an assu. was to provide for a surviving family, without the most remote intention of converting it into a dangerous speculation for the benefit of the member himself.

Another and more remote consequence flowed from the high premiums, which it is important to observe :

As the ann. premiums were so much higher than they ought to have been, according to the more correct T. of the prob. of life, the pol. acquired little or no real value for many years; so that when the purpose of making the assu. was answered, and its continuance, as often happened, became unnecessary, *the pol. was seldom or ever surrendered to the office, but was suffered to run out : so that in fact not one-half of the assu. made for the whole of life ever became claims.* Nor was this neglect on the part of the assured confined to the period in which the premiums were overcharged; but the same disregard to their own interest continued, even after the premiums were reduced by the Northampton T., and notice had long been given in the *Short Account of the So.*, that the full value would always be paid for a surrendered pol.; so that from the year 1770 to 1787 the number of forfeitures amounted to an average of 125 p.a., or about 1 in 7 of all the assu., and continued at the same rate till the attention of the members was awakened by the increased value of their pol., acquired from the repeated add. to the claims, and they were led to sell them for a fair consideration to the office. From the year 1800, when the 6th add. took place, the payments made ann. on the *surrender of pol.* amounted to a very considerable sum, and continued to increase till within these few years, when the persons assured adopted a different method of disposing of their interest by public auction, or to a speculative So. lately estab. for the purchase of reversions [*Reversionary Int. So. 1823*], among which are included the pol. of assu. granted by this office. But had the So. no competitors in the purchase of its pol., the source from which it formerly derived so much advantage may now be said to be closed, as the forfeiture of an old pol. seldom or ever occurs, and the full value is always paid for the surrender of it.

He next turns to the So.'s investments :

During the long series of years in which this So. has existed, the nation, for a considerable part of the time, has been engaged in foreign wars. These, by depressing the public credit, have afforded the opportunity of investing money in the funds to great advantage, *and have thus contributed in no inconsiderable degree to increase the present surplus of the So.* From the year 1777 to 1786, the average price of stocks in the 3 per cents. was about 60 p.c.; and from 1796 to 1816, the average price of the same stocks was below 60 p.c., or 24 p.c. lower than its present price. But no reliance ought to be placed on advantages of this kind. Another war may reduce the value of stock in the funds to half its present value, or still lower if some of our modern statesmen should succeed in breaking the public faith by destroying the sinking fund. [The sinking fund had been a pet delusion with Dr. Price.] It would be madness, therefore, to found any measure on a property so fluctuating. The add. to the surplus arising from the improved state of public credit is an *accidental circumstance*, affording no proof of the excellence, any more than a deficiency in the cap. arising from its depreciated state would have afforded a proof of any defects in the constitution of the So., and is mentioned merely as one of the causes which have produced its present opulence.

Next we reach a declaration so candid that we should be driven at once to consider the circumstances which could have induced it, were not these already well in our mind :

But it is necessary to observe that *all the causes hitherto noticed, as having conducted to produce the welfare of the So., no longer exist to enrich it.* The premiums have been reduced, in some instances nearly one-half. The pol. are seldom or ever forfeited; and the purchases made in the public funds at their present price are more likely to be disadvantageous than beneficial to the So. There is, however, one source remaining, from which it derives its chief security and success. I mean the higher prob. of life among its members, than those given in the T. from which its premiums are computed. But even the benefits derived from this source have their limit. In a So. composed entirely of young lives, selected from the general mass of mankind, the rate of mort. will necessarily be lower than in a T. including lives of all descriptions. In a more advanced period of its existence, the effect of this selection will gradually lessen, till in process of time the So. will become like any other community, and subject to the ordin. laws of mort.

We now reach the 3rd chap. headed, "Remarks on some of the late misrepresentations respecting the rules and practice of the *Equitable So.*" Speaking of the criticisms which had been offered on the mode of distributing the surplus, Mr. Morgan says (p. 59) :

In a complicated case of this kind it is impossible, without immense labour, to make a distribution of the surplus, which shall give to every member the exact sum to which he is entitled. *As a simple and general method, I know of none so correct as that of making add. to the claims [rev. bonuses], and none more to be deprecated than that of immediately dividing the surplus [cash bonuses].*

Were these divisions to be made ann., as Mr. Babbage recommends, and the *whole* of the surplus distributed among the members, the So. would be kept in a perpetual state of poverty. If only a part of the surplus is distributed, and the remainder is left to accumulate, the evil (admitting it to exist) will only be partially removed, and the objection against making the longest liver the greatest gainer will still continue, though not perhaps in an equal degree. In making these ann. distributions, if the surplus is not immediately divided, I see no other method of doing it than either by reducing the ann. premiums, or making yearly add. to the claims: both equally ruinous, and differing only in the way in which that ruin is effected; the one destroying the income, the other the cap. of the So. But as it is impossible to determine the surplus, or to make any distribution of it, with perfect justice, without previously ascertaining the interest of each member in his assu., so as to divide the surplus in proportion to that interest, and as the variation every year in the ages and the number of the assured renders the regulation of this process necessary before every division, I think no person who has been engaged in a work of this kind will hesitate a moment in pronouncing the measure which requires it to be impracticable, especially in the *Equitable So.*, where, from the add. at different times, and other circumstances peculiar to it, almost every assu. requires a separate computation.

Regarding the regulation of 1816, and the criticisms which had been made by Mr. Babbage and others upon it, Mr. Morgan says :

I know not whether it be from a regard to its welfare, or from a less worthy motive, *that the affairs of the So. have lately so much interested those who have no concern in them, and who appear to consider its funds as so much public property to be parcelled out among all who choose to lay their hand upon it.* To those persons it will be sufficient to observe, that the So., when the bye-law was passed in 1816, had a right to impose what conditions it pleased on those who should be assured in future, or it might have assigned the *whole of the surplus to the members then existing.* The admission, therefore, to a part, of any part of the surplus, however small or remote, should be con-

sidered as a gratuitous benefit conferred on new assu., which might have been withheld without any injustice, if such had been the condition on which the So. had determined to grant them.

But the sting of the whole was contained in the three following passages, to which we have to draw more particular attention, in order that the replies which they provoked may be the better understood :

It is neither my intention nor my wish to discuss the merits or the demerits of the numerous inst. lately estab. ; but I cannot help expressing my surprise that some of them should be held forth as examples to the *Equitable So.*, which owes its success to a conduct directly the reverse of that which they pursue.

He here throws off a foot-note, which it is necessary that we quote :

I should be very sorry to see this So. bribing agents with a commission of £5 p.c. on all the assu. they bring to the office, and aggravating this expense by a reduction of the ann. premis. ; while prospects of future advantages are held out, which under such circumstances can never be realized. *I should still be more sorry to see the So. descend to the quackery of pretending to determine how many years should be added to the age of a person, according as he is affected with asthma, dropsy, palsy, etc., in order to fix the prem. at which his life is to be assured.*

He continues his obs. as follows :

The censures so freely bestowed on measures adopted by this So. to secure the interests of all its members, by anonymous writers in newspapers and reviews, are founded in gross ignorance, and deserve no regard. But there is one gentleman whom I am sorry to see among those who find fault with the So., whose name, from his well-known abilities, gives greater weight to his objections : I mean Mr. Babbage, who in his late pub. on the different inst. for assu. on lives has accused this So. of faults which, if he had been better acquainted with the rules and practice of the So., he would have seen to be without the least foundation.

We need not pursue these obs. further, and the less so, as we have, as stated, to note some of the replies to them. Speaking of the work itself for a moment, we must express our conviction that it was hardly worthy of the author, and of the occasion. Of the author, because he had the most abundant means of being accurate, and yet on many points he is far from it ; of the occasion, because it was an opportunity for a masterpiece : whereas the production is really quite common-place. It may, indeed, have been intentionally incomplete—*A View*, etc., instead of *The View*, etc. ! But then we should have to ask why ? And although an answer presents itself to our mind, we prefer not to pursue the subject. Mr. Morgan might have written the hist. of the So. during his time. He did not do it—the task has fallen upon us ; and although it has a certain fascination, we (in the absence of access to the office records) have not found it free from difficulty ; while the labour speaks for itself.

In the Appendix to this work was contained a T. of mort. experience of the So., which will be given under EQUITABLE SO., MORT. EXPERIENCE OF.

In the *John Bull* newspaper, 28 March, this year, appeared a letter entering into elaborate calculations in view of showing the discrepancy between the *Northampton T.* and the actual experience of the So., as disclosed by Mr. Morgan's book. We can only take the annexed T. by way of illustration. The writer says, "From this it appears that in the—

Thus giving in the last col. 170 to 7, or 24 to 1. "Thus (he continues) are the chances in the *Equitable* 24 to 1 in their favour, and this arises from the lives in the *Equitable* being all chosen ; whereas the T. are formed from the mort. of life in general," etc. And he enters upon a long train of deductions to account for the differences—never for a moment discerning the error into which he had fallen in taking the "years

of life" to be the number of persons insured. We believe the writer of this letter was Mr. W. Baldwin, who pub. a pamph. concerning the So. in the following year, which we have to notice.

The next reply provoked by Mr. Morgan's pub. came in the shape of a letter to the *Times*, 26 June, 1828, from Mr. Francis Baily, who explains the circumstance of his writing as follows :

A pamph. has lately been pub. by Mr. Morgan, containing (amongst other things) some remarks on what he is pleased to call "the late misrepresentations respecting the rules and practice of the *Equitable So.*," and in the chapter which he has appropriated to this subject he has passed some very unmerited censures, and made many unfounded remarks on the recent production of my friend Mr. Babbage, the present Lucasian Prof. of Mathematics at Cambridge. Mr. Babbage is now making a tour on the Continent, and the time of his return to this country is somewhat uncertain. But as he honoured me with the perusal of his work prior to its being sent to the press, and was pleased to consult me in its progress, I consider myself in some measure called upon, under existing circumstances, to step forward on the present occasion to advocate his cause during his absence, not only by denying that spirit of misrepresentation of which he has been thus falsely accused, but also by challenging Mr. Morgan to a proof of the principal charges which he has thought proper to make, leaving to Mr. Babbage the task of answering more at length, on his return, the whole subject of Mr. Morgan's pamph., should he think such a step requisite or necessary.

<i>Northampton T.</i>		In the <i>Equitable</i> .	Average between the two in favour of the <i>Equitable</i> .
Age.	Died.		
10 to 20	1-10th	I-200th	20 to 1
20 „ 30	1-7th	I-240th	34 „ 1
30 „ 40	1-6th	I-200th	33 „ 1
40 „ 50	2-9ths	I-150th	33 „ 1
50 „ 60	2-7ths	I-80th	23 „ 1
60 „ 70	2-5ths	I-36th	14 „ 1
70 „ 80	2-3rds	I-20th	13 „ 1

He then examines the charges seriatim, and adds :

I have already said enough to show the spirit in which Mr. Morgan's pamph. is written, and how unfairly he has treated Mr. Babbage, both in his quotations, and in his comments. . . . Mr. Morgan seems very much annoyed at the interest which the public take in the proceedings at Chatham Place; and "cannot see what the public, distinct from its members, has to do with the concerns of the So." But Mr. Morgan ought to know, that when a So. issues its proposals to the public, thus inviting them to join their concern, the public have a right to canvass and discuss the proposals thus tendered to them, and that in such discussion the whole estab. comes under review. Besides, where so many millions of money are concerned, it is not the members alone that are interested, since the prospect of ultimately enjoying this property is diffused, not amongst the members themselves, but amongst a vast assemblage of relations and expectants, all of whom consider themselves as fairly entitled to give an opinion on what is going forward.

The *Equitable So.*, however, need not fear the test of any public examination or inquiry. For though its origin, according to Mr. Morgan's own showing, was not very flattering, and although in its infancy it seems to have adopted the practices which are deprecated in even the worst of the present joint-stock cos., yet by a speedy reformation, the So. advanced its credit and renown; and under the prudent and able administration of Mr. Morgan himself, it has arrived at a degree of opulence and importance unparalleled in the hist. of such undertakings.

Mr. Morgan briefly replied in a letter addressed to the same journal, and dated 30 June. He said :

I feel no disposition to enter into any dispute or discussion respecting my late publication, and therefore have only to observe, in answer to Mr. Bailly's letter in your paper, that he has put a construction on the remarks I made on Mr. Babbage's work which I never intended. In using the word misrepresentation, I had too much respect for that gentleman to suppose that it could have arisen from any other cause than misinformation, and have accordingly regretted that he should not have been better acquainted with the rules and practice of the *Equitable So.* before he made them the subject of his animadversion. With regard to the passages in which I am accused of having misrepresented him, I see no reason to alter my opinion, and consequently do not think it necessary to notice all the instances in which I am charged with acting unfairly towards Mr. Babbage. I shall just select the first and second art. of Mr. Bailly's letter, which will be sufficient for my present purpose, and must refer to the works themselves for a justification of the rest. . . .

The next reply to Mr. Morgan came also in the shape of a letter in the *Times* of 1st July, 1828, from Mr. George Farren, in that author's best style. He complained of the words in italics in the "note" by Mr. Morgan which we have already quoted; but in so doing claimed what he had no right to claim, viz. to be the founder of the scheme, then new, for ins. diseased or impaired lives. [DISEASED AND IMPAIRED LIVES, INS. OF.] He next turns upon Mr. Morgan, and says :

Great allowance ought certainly to be made in deference to Mr. Morgan's age, and the prejudice consequent on early impressions and opinions being carefully cherished for upwards of half a century; but surely Mr. Morgan will not induce his readers to put faith in the obs. on which the *Northampton T.* is founded, after the declaration he has made in his own pamph., concluding with a proof that only 2 deaths have actually taken place where 3 are charged for by the *Northampton T.* By neglecting to give any precise information of the work in which the figures contained in the 2nd and 3rd cols. of the above T. [quoted in *EQUITABLE SO., MORT. EXPERIENCE OF*, under date 1828] have been obtained, Mr. Morgan has, as he says, rendered it of no practical use; but I will venture to give my reasons for thinking I am right in my suggestion—although, if right, it might convict Mr. Morgan of error in calculation, either by design or accident. It is certainly difficult to believe that the error in the fourth col. of Mr. Morgan's T. is attributable to accident, when it is seen that the tendency of the error is to remove the impression that the terms of the *Equitable So.* are unfavourable to the public.

So far I have only spoken—I hope not disrespectfully—of the results from the materials for calculation collected by Mr. Morgan, who has designated by the opprobrious name of *quackery* any attempts to determine the prem. at which the life of a person affected with asthma, dropsy, palsy, etc. ought to be assured. I will here pause, and ask Mr. Morgan whether there is not at this moment, or at least whether there was not as recently as 1819, when Mr. Morgan pub. his Address of 1816, an order of the general court of his So. in the following words—"Ordered, that for the extraordinary risk attending the lives of military persons, an add. be made after the rate of £22 p.c. upon the respective prem. so increased; and for the risk of smallpox or gout, an add. after the rate of £11 p.c.; the said extra charges being proportionable to the charges which are now made for these risks respectively." Can Mr. Morgan favour us by pub. the data from which he ascertained that the risk of military life required an increase of £22 p.c., or that the risk of smallpox or gout required an add. of £11 p.c.?

He pursues a similar style of inquiry regarding "Female hazard," "Occupation hazard," etc. (see 1829).

There was also pub., *Observations on a Pamph. lately pub. by Mr. Morgan, entitled, "A View of the Rise and Progress of the Equitable So."* by Henry James Brooke, Sec. to the London Life Asso. (Lond. 8vo.). This we have never seen.

An examination of Mr. Morgan's work appeared in *The Westminster Review* for April, 1828 [no. xviii. vol. ix. art. v. pp. 384-421].

In the same year there appeared in the *Philosophical Magazine: Letter addressed to Wm. Morgan, Esq., on the Experience of the Equitable So.* This letter was written by Dr. Thomas Young, although it does not bear his signature; and it was the closing point of a controversy between that gentleman and Mr. W. Morgan, which had extended through that and the preceding year. An account of the circumstances connected with this controversy will be found under *EQUITABLE SO., MORT. EXPERIENCE OF*.

Mr. Milne (*Ency. Brit.*) gives the following account of the circumstances which led Mr. Morgan to publish his *View*, etc., but we deem the explanation incomplete, or at all events insufficient :

A Committee of the House of Commons on F. Sos. having been appointed in 1827, chiefly for the purpose of inquiring into the law of mort. and the values of life annu. and assu. in this country, the rep. of that Committee, by bringing the subject prominently before the public, and exciting attention to well-estab. but much neglected results of inquiries into it, had the effect of correcting to a considerable extent opinions upon it, taken upon trust without due examination, and generally diffused. The estab. of many new ins. cos., and the increasing prevalence of life ins. for 15 or 20 years before,

by exciting discussion and examination of their rates, had also contributed to produce that effect. At length the members of the *Equitable Society*, as the period of the decennial investigation of their affairs in 1829 approached, expressed a desire to avail themselves of the information respecting the *Law of Mort.* of the So., which the office books might afford, for estimating and dividing profits.

This could only apply to the Appendix, which we deal with under *EQUITABLE SO., MORT. EXPERIENCE OF.*

In view of the next decennial investigation, a member submitted to the gen. court, 4th Dec., the following propositions :

I. That in preparing the accounts of the So. for ascertaining the profits, of which two-thirds are to be appropriated at the ensuing division, the Act. *do calculate the value of the existing pol. according to the experience acquired by this So. of the duration of the lives which they have assured :* and that he do calculate the value of the prem. receivable on pol. on the like experience.

II. That the Act. do distinguish and class the existing pol. so as to give information to the members by stating in his account—1. The gross amount of existing pol. on each particular age, and the gross amount of the valuation of each class. 2. The gross amount of add. to pol. on each particular age. 3. The gross amount of prem. receivable on pol. on each particular age, and the valuation of each class. 4. And the average number of years during which the pol. on each particular age have existed.

III. That when the accounts of the So. by which the profit will be shown shall have been made up, the same be printed and sent to each member at least one month before the same be taken into consideration by the gen. court.

A special court was to be called to take the same into consideration, “and generally to consider the proceedings preliminary to the decennial declaration of profits.”

1829.—A special gen. court was held 22 Jan. for the purposes last named. At this court the directors submitted a “Statement” of the proceedings they had resolved to adopt in view of the next investigation. From this, which is a very lengthy document, we take the following more important passages :

They had, primarily to the receipt of the propositions now before the court, maturely considered the whole subject, with the view of ascertaining whether it would be desirable, and if desirable, whether it would be lawful and just, to adopt any new mode of calculating, or of appropriating, the surplus. In this consideration, they had necessarily directed their attention to the propriety of adopting any new T. of the duration of life in the value of the existing pol. *The result of their deliberation is that the So. could not now depart from the Northampton T. with that due regard for the interests of the new insurers, which, they are satisfied, this court is always desirous to preserve.*

It is well known that any T. formed upon the experience of the *Equitable So.* will exhibit a longer duration of human life than that which is deduced from the *Northampton T.*; consequently the value of the policy which, in order to estimate the surplus, is to be deducted from the So.’s stock, will be smaller, and the estimated surplus necessarily greater, than according to the T. now in use.

It is obvious that by the appropriation of two-thirds of this surplus, so enhanced in apparent value, among the persons now entitled to share it, while the stock of the So., out of which this appropriation is made, receives no add. value, the sum reserved for the new insurers will be diminished in amount. The effect will be the same as if the reserve itself were less than one-third of the surplus:—thus the obligation to use the *Northampton T.* and the obligation to reserve one-third are equally imperative upon the So.

The proposed alteration, therefore, will injuriously affect the interests of those, who, having made assu. since 1816, are not entitled to share in the present surplus. And it is the decided opinion of the court of directors that these persons have a just and equitable right to complain of any departure, hurtful to their interests, from the system which prevailed in the So. in 1816; whether to be found in the bye-laws, or in the known practice of the inst. The expec. of a future part. in our profits has been unquestionably one of the principal inducements to those persons to become members of the So. Repeated acts of the So. have sanctioned this expec. We have made with the new insurers, it is true, no specific contract as to the amount or proportion of this participation; but we have freely made known to them the rules by which the So. had in this respect been guided before they were admitted into it. We have given to those rules a subsequent and solemn sanction, by adhering to them on the only occasion on which they could have come into operation; and it would scarcely be consistent with good faith and fair dealing, even if it were lawful, to introduce a new regulation less favourable to those who have relied upon our implied engagement.

This principle of adherence to former practice in reference to the interests of the new insurers is no new doctrine: it was clearly and forcibly stated in the Report of the Court of Directors read on the 3rd March, 1825, and then sanctioned by the vote of this court. This principle in the opinion of the directors must be applied to all proceedings in which the new insurers are concerned: it is peculiarly applicable to the *Tables*, because the ann. payments made, as well by the new insurers as by the old, are calculated from those same T.: the present stock of the So., of which a great portion is now to be appropriated, is partly composed of the accumulated payments of the new insurers; and the surplus is in part occasioned by the excess of those payments, beyond what the reformed T. would require.

But the directors must here remind the members of this court, that they, too, may be injuriously affected by an alteration in the mode of valuing the pol. *Such of them as may be desirous of surrendering either their whole pol., or the add. made to the sums assured, must necessarily receive a smaller sum in compensation for such surrender; and when it is considered that many of the pol. have been made available securities at their supposed known and certain value, it is easy to perceive how great would be the derangement of affairs occasioned by an altered valuation.*

And perhaps the members of the court are scarcely aware, that if the proposed new *Tables* are adopted in the valuation of such pol. while the present prem. are continued, a person may be assured for 8 or 10 years without acquiring any disposable int. in his assu., or being entitled to any return for its surrender. He will thus be placed in a less advantageous situation than those who, having already surrendered their pol. or add., have received the full value according to the *Northampton T.*

For all these reasons the court could not give their support to the first of the propositions about to be discussed. Passing to the next :

They have, nevertheless, thought it their duty to ascertain whether any T. accurately deduced from the experience of this So. do now exist; and whether it be possible to construct such T. They are satisfied that the T. already pub., professing to be founded upon “the *Equitable experience*,” cannot

be relied upon : in proof of this it might perhaps be sufficient to mention that although each has been constructed by an eminent mathematician, they do not agree; but in truth those gentlemen had not before them perfect or complete materials. *No allowance has been made for the plurality of pol. effected on one life; and other deficiencies exist, which, without implying any want of skill in the framers, necessarily produced inaccuracy in the T.*

To furnish the means of constructing a T. would necessarily require much time and labour, and perhaps occasion some extraordinary expense. And it must be observed that, owing to the smallness of the number of persons ins. at the earlier ages, the T. could not accurately describe the experience of life throughout its whole duration.

The directors next turn to the question of the appropriation of the surplus falling to be made at the end of the year; and state their desire to communicate the "fullest information." They say under this head :

The court is aware that by a bye-law made on the 8th May, 1800, and still in force, it is ordered that every decennial add. to the claims be preceded by "a careful investigation of the value of each pol." In this investigation some progress has already been made; and it will be the particular care of the directors that it shall be finished with all despatch; so that the result may be communicated to the court some time previous to its being taken into consideration.

The directors have on the present occasion, as in the year 1825, considered the possibility and expediency of an arrangement by which the labour required for this particular investigation might be lessened—by some mode of classification which should also enable them to lay before the court, a more copious statement than has hitherto been usual of the affairs of the So. They have come to the conclusion that even if the bye-law did not exist, and even if the work had not already been commenced, it would still be inexpedient to supersede, by any plan of classification, the particular investigation required by the bye-law.

The second of the propositions which have been circulated suggests a plan of valuation obviously incomplete. To the classes, proposed, according to the present ages of the members, must be added separate classes for each variety of ins. for more than one life, or for any fixed number of years. In reference, too, to the prems., various distinctions must be made, in consequence of the higher prems. paid under particular circumstances, and the commutation of many prems. for a higher sum during a shorter term; nor can the value of the prems. be accurately computed without a reference to the period at which each becomes due; of this reference the proposed plan does not admit; . . . and the directors trust that when it is considered that the officers and clerks of the So. are familiar with that accustomed mode, and have already made progress in it, and that although the process is no doubt laborious, it is both simple and certain, the court will not, at the risk of occasioning delay in the declaration of the surplus, order that mode to be discontinued. They must add that the calculation of the effect of an add. at any given rate forms part of the process, so that the surplus may be appropriated almost immediately after it has been ascertained—an advantage which appears to the directors to be less easily attainable by any other plan. . . .

The question now is in what mode the So. is to proceed towards the decennial appropriation of the surplus. *It must be quite unnecessary, and may produce much embarrassment, to connect with this one present object plans for the future conduct of the So.* On the whole of this subject the directors express their earnest hope, that the court will be satisfied with the assu. of their intention to communicate the fullest information, and will not, on the present occasion, impose upon them any new mode of making the valuation or stating the account.

The other points discussed do not demand any special notice.

While the thanks of the gen. court were voted to the directors for their statement—the statement itself being ordered to be printed and circulated among the members—the agitation which had orig. called it forth was by no means allayed.

There was accordingly pub., *Statement made by the Directors of the Equitable So., etc., at a Gen. Court of the So. holden on Thursday, the 22nd of Jan. 1829.*

There was also pub. during this year an anonymous pamph. : *An Examination of the Statements contained in a Pamph. by Mr. Morgan, entitled, "A View of the Rise and Progress of the Equitable So.," to which are added some suggestions for the future gov. of the Society.* The writer says in the preface : "Mr. Morgan's pamph. . . . is shown to contain errors which, if permitted to remain uncontradicted, would be giving a semblance of demonstration to reasoning which is in itself fallacious and calculated to mislead those who, from not possessing the leisure or the inclination necessary for their detection, would prob. be inclined to repose with confidence in its correctness." He then enters into a most searching investigation into the statements made by Mr. Morgan regarding the mort. experience of the So., and shows some very serious discrepancies. But as these have long since been rectified by the later and more complete investigations of Mr. A. Morgan, there is no present need to dwell upon them.

About the same time there was also pub. by Mr. W. Baldwin, *A View of the Rise, Progress, and prob. Decline of the Equitable Assu. So., addressed to the Insurers in the Equitable, and the Ins. Offices in Lond.* The first part of this pamph. shows that its author had been led into the same mistake as Mr. Babbage and Dr. Young had fallen into, and had taken the numbers given by Mr. Morgan to be the actual numbers ins. in the So., against which he calculates the proportion of deaths, and finds them to be as 24 to 1 in favour of the So., made out in the way we have shown by the T. taken from the *John Bull* in the preceding year. We may now pass to the second part of the pamph., where the writer says :

Having got thus far, we shall now, in taking a slight sketch of the rise and progress of this So., be enabled to ascertain clearly the causes which have contributed to its success, and to prognosticate, with equal precision, how far the result will be commensurate with the public expectation.

Every one must be aware that the object of L. Assu. is to provide against the casualties and misfortunes arising from sudden death—to disarm that fearful king of one of his greatest terrors; and to render ultimate success and independence certain to all anxious to attain it. Objects alike worthy of the most enlightened statesman and the most benevolent philanthropist.

But now, when these objects are utterly perverted, when the So. has become a gambling speculation, its members stock-jobbers; when the insurers look not to their security against death, but to future profit; when these chances are trafficked in, speculated on, bought and sold; when the expecta-

tions of the insurers are raised; and their calculations of future profit from past experience are fully relied on; it not only becomes the Sec. and Directors to check this gambling spirit, as they have very properly attempted to do, but it is the duty of every one who has respect for this inst., or for the system of Life Assu., to disabuse the public of this erroneous impression, to show the fertility of their schemes, lest in the disappointment and revulsion of the public feeling, not only this office should suffer, but Life Assu. itself should fall into disrepute.

When the *Equitable* office was first estab., the assurers were almost all assurers for a short term, very few were assured for life; the consequence was, that the profits of the former pol., arising from the exorbitancy of the prem., as I have proved was the case, counterbalanced the loss which would naturally have been sustained by the survivors for the security they received, and gave them, besides their assu., a profit in the shape of bonus. This profit accrued long before it was thought of being divided; it was then divided slowly, with great caution, circumspection, and prudence; the source from whence the profits came, and the profits themselves, still continuing undiminished; but when the bonus had been declared once or twice, when people understood clearly what this bonus meant, and how it was to be obtained, they no longer ins. for a short term, and the source of the profit ceased; assu. for the whole life became the fashion, and have continued so; and now there is only 1 in 100 in the *Equitable*, that is not ins. for the whole life: that is, there is only 1 payer of bonus to 100 receivers; and how fast these 100 bonuses will be, proceeding out of the miserable payment of an ann. grantor for 7 years, remains for the year 1830 to show. I think this is enough to induce most people to pause before they speculate on the bonus to be divided at that time; but if more is wanting, I will challenge any insurer in the *Equitable*, let him be an insurer for 10, 20, 30, 40, or 50 years, to show, after he has received his bonus in 1830, that he has received one farthing profit, or that the liabilities of the *Equitable* are not greater by several millions than their assets. I will challenge any insurer in the year 1840 to show that he has not purchased his security against death dearer in the *Equitable* than he could have purchased it in any other office in Lond.; and I further prophecy, that in the year 1850, if the *Equitable* continues to act as it is acting now, it will have less bus. and be in worse repute than any office in Lond.

The *Equitable* ought, as soon as they perceived their wealth accumulating, and ascertained the cause of that accumulation, to have made a distinction between assu. for short terms and assu. for life; between those who had no interest in the office and those who sought to obtain one; the short terms ought to have been effected at a much cheaper rate, or those who sought to reap bonuses much higher. It was unjust to take 24 times as much as was requisite from those who had no chance of receiving it back, but it was an injustice that soon worked its own remedy. It was impolitic, for by grasping at too much profit, they received the due reward of extortion, and lost all. It drove from the So. the only source of profit, and which might have been retained, had a reduction approaching nearer to the *Equitable* experience been made in the rate of the short terms; as it was, the short terms were abolished or went elsewhere. The expectation of the bonus is, and has been for some time past, the only inducement to ins. in that office; as soon as this idea is exploded, the increase of bus. will cease, for the other offices assuring cheaper will have the preference, and the *Equitable* will be left to meet its liabilities with a decreasing income and a declining credit.

If any other assu. office, estab. on the principles of the *Equitable*, find themselves securing a profit, and would wish to continue doing so, they will do well to reduce the prem. on the short terms according to the T. of the *Equitable* experience, or something between that and the *Northampton* T. They will thus act with justice to the public, and with a proper regard to their own interest and the interest of the survivors.

I have no facts to offer in support of this argument, but will offer to support them by wager, like many others in the same predicament, viz. that I will bet any one in good health the odds according to the *Northampton* T. that he does not die within the year.

We see how the error into which this writer had fallen pursues him through all his arguments; but we do not intend to pursue him any further.

Finally the directors caused to be prepared and laid before counsel—Messrs. Bell, Brougham, and Bickersteth [afterwards Lord Langdale]—a *Case*, in which the leading regulations connected with the ascertainment and distribution of the surplus, the rights of membership, and other incident questions, as contained in the Deed and Bye-laws of the So., were set out; and counsel were requested to advise on the following points:

1st. Whether any and what contract, either express or implied, has been made with the new insurers as to the mode of calculation to be adopted for the purpose of ascertaining the profits of the So.; or as to the amount or proportion of their participation in such profits; or as to the appropriation of profits being made once in 10 years only.

2nd. Whether it will be legal to depart from the practice of the So. as it existed before the year 1817, by using any other T. than those on which the prem. are calculated; or by reserving a less proportion of such surplus on each appropriation; or by altering the period of appropriating the surplus stock of the So.

3rd. Whether any bye-law or order to be made by the general court, involving a departure from the former practice in either of the particulars before mentioned, will be inconsistent with the principles of Law and Equity, and is likely to lead to adverse proceedings in those Courts. To all which counsel say—

We are of opinion the new insurers have entered into the So. and paid their prem. under circumstances from which it must be implied that a contract subsists between them and the other members of the So., that the mode of calculation adopted for the purpose of ascertaining the profits of the So., and the amount or proportion of their part. in such profits, shall not be altered so as to affect the relative interests of the new and old insurers; and that whilst such relative interests may be thereby affected, it will not be legal to depart from the practice of the So. as it existed before the year 1817, by using any other T. in calculating the profits than those on which the prem. are calculated, or by reserving a less proportion of the surplus on each appropriation, or by altering the period of appropriating the surplus stock of the So. And we think that a bye-law or order to be made by the gen. court, if it involves a departure from the former practice in any of the above particulars, will be inconsistent with the principles of Law and Equity, and may lead to adverse legal proceedings.

This opinion bears date Lincoln's Inn, 24 June, 1829. It and the case upon which it

was based were read before a gen. court held 23 July; and it was resolved that the same be printed and circulated among the members.

The investigation took place as at the close of the present year. The pol. in force were 8867, ins. £12,417,630, and carrying bonus add. of £2,432,342. About 5700 of the pol. bore date before 1st Jan. 1817, and were therefore entitled to parti. The total surplus ascertained amounted to the enormous sum of £5,394,033. Of this the sum of £3,408,552 was actually distributed in the form of a rev. add. at the rate of 3 p.c. in respect of every prem. falling due and paid up to 1st Jan. 1830, *on the pol. entitled to parti.*

The effect of this bonus distribution upon pol. issued before 1 May, 1776, was (with all previous add. included), to add the sum of £496 to each £100 ins.; so that a pol.-holder ins. before May, 1776, and dying after 31 Dec. 1829, would receive £596 for each £100 orig. ins.! This result was brought about by the "Tontine" plan of bonus distribution adopted by the So. See sub-heading *Surplus*, etc.

The number of members entitled to vote at the gen. courts at this date was about 2000.

The position of the bus. of the So. on 31 Dec. 1829, is shown by the following cols., taken from the "Valuation Statement" made up to that date:

Ages of Members.	Number of ins. pol.	Amount of sums ins. and add. to pol.	Amount of ann. prems. receivable on these pol.	Value of the sums ins. and add. by Northampton T.	Value of the ann. prems. by Northampton T.
		£ s. d.	£ s. d.	£ s. d.	£ s. d.
15 to 20	37	46,020 0 0	862 13 0	18,751 0 0	17,112 4 0
20 " 30	264	346,617 10 0	7,563 1 0	158,589 8 0	136,559 19 0
30 " 37					
37 " 40	1012	1,411,932 15 0	34,917 5 6	720,598 14 0	568,122 0 0
40 " 50	2014	3,347,182 17 0	87,546 2 6	1,916,393 0 0	1,235,858 10 0
50 " 60	2603	4,644,354 10 0	126,948 15 6	2,980,922 0 0	1,478,293 0 0
60 " 70	1807	3,275,280 9 0	96,824 7 0	2,363,807 14 0	867,926 5 0
70 " 80	851	1,472,738 16 0	46,006 19 0	1,187,283 13 0	278,172 15 0
80 " 90	136	425,251 8 0	6,833 14 6	198,034 4 0	25,117 3 0
90 " 93	13	28,398 0 0	535 1 6	26,405 3 0	1,049 18 0
Totals...	8737	14,797,686 5 0	407,137 19 6	9,570,784 16 0	4,608,211 14 0

Crediting the value of the prems. against the value of the sums insured, the balance chargeable against the Life Fund was found to be £4,962,573 2s. But at the same time another valuation was made by the *Equitable* Experience T. (1834). The value of the sums ins. and add. by that T. was shown as £9,198,591 14s.; the value of the prems. by the same T. was £4,916,669 13s., leaving debit against Life Fund £4,261,922 1s.; or £700,651 1s. less than by the *Northampton* T.

The different classes of ins. in force at same date were as follow :

Ins.	No.	Sums Ins.	Annu. Ins.	Additions.	Amount of sums ins. and add.
		£	£ s. d.	£ s. d.	£ s. d.
For the whole continuance of life....	8716	12,256,282	.....	2,401,711 17 0	14,657,993 17 0
On Survivorships	60	102,255	.....	24,170 0 0	126,425 0 0
On the joint continuance of 2 or 3 lives	12	7,140	.....	1,690 0 0	8,830 0 0
On the continuance of the longest of 2 or 3 lives	18	30,958	.....	4,771 0 0	35,729 0 0
For terms	21	20,995	.....	.....	20,995 0 0
Survivorship Annu.	35	.....	4367 10 0	.....	.....
Annuities after an assigned time	5	.....	1250 0 0	.....	.....
Totals	8867	12,417,630	5617 10 0	2,432,342 17 0	14,849,972 17 0

The following is a statement of the investments of the So. as on 31 Dec. 1829, made up at the price of the day :

By £4,373,000 stock in the 3 p.c. Consolidated Annu. (at 89) ...	£3,891,970 0 0
" £4,587,000 stock in the 3 p.c. Reduced Bank Annu. (at 90)...	4,128,300 0 0
" £400,000 stock in the 3½ p.c. Reduced Bank Annu. (at 99)...	396,000 0 0
	£8,416,270 0 0
" Cash advanced on Mortgage	1,822,859 13 1
" Int. receivable, Prems. ditto, and Cash at Bank	172,410 13 8

Total £10,411,540 6 9

The importance of a rise or fall in the price of the funds upon the fortunes of the So., for the moment at least is here made apparent, more than four-fifths of the entire investments being in Gov. stocks.

At a gen. court held 3 Dec. 1829, these results were made known, and Mr. W. Morgan delivered his 8th Address. After the full details we have already given of the events of this period, it is not necessary to retrace the ground. Two passages will suffice:

I have addressed the members of the gen. court on many former occasions, but on none of greater importance, or on which I have felt more interested, than the present. My advanced age and the infirm state of my health must soon render it necessary to close the long series of years in which I have been engaged in endeavouring to promote the welfare of this So.; and after having devoted the greater part of my life to this end, I cannot look forward to its future state without anxiety, nor without cherishing an ardent hope for its undiminished credit and prosperity. . . .

The accounts now laid before the court, while they exhibit the progressive improvement of the So., afford a striking proof of the beneficial effects of those measures which were adopted in 1816, and to which are to be principally attributed the excess of the present above all former add. Had no such measures been adopted, so far from exceeding, the present add. would prob. have fallen short of the preceding ones, notwithstanding the advantage which has been derived from estimating the funded property of the So. at more than 20 p.c. higher than has been done in any former investigation.

That the So. may prob. have a right (founded on its former practice) to estimate its stock in the public funds at the price it bears at the time of determining its surplus, I do not intend to dispute; but I think the prudence of exercising this right to its full extent is very questionable; and I very much doubt whether the So. could as easily be prevailed upon to exercise it to the same extent should the funds at any future investigation be reduced 20 p.c. lower than they were in either of the two former investigations. . . . [LIFE INS. INVESTMENTS.]

In the intervals of the former decennial investigations, it has not been uncommon, especially among the old members, to witness some expressions of impatience, and an eager desire to have their hopes speedily fulfilled. Without entering into the reasonableness of this anxiety to part, to the last farthing of the surplus (for nothing short of this can satisfy such a disposition), I am sorry to observe that in the present interval this anxiety has been greatly increased by the unreasonable expect. which have been entertained during the last 4 or 5 years. On what grounds these expect. are founded it is not easy to imagine. They are not supported by any events that have proved more than usually favourable to the So. On the contrary, the prob. of life have approached nearer to those in the T. from which the prem. are computed; the int. on the mortgages has been reduced; the purchases of stock in the public funds have been made at a much higher price; and the sums paid for the prospective add. have necessarily exceeded their amount in any former interval. The experience of the So. therefore justified no such expect.; and the excess of the present surplus should be ascribed partly to the casual high price of stock in the public funds, but chiefly to the wise regulations adopted in 1816. But it is not my wish to discourage the future expect. of the So. My chief object has always been, as it is at present, to moderate, not to destroy, those expectations; and I should be very sorry to take my leave of the So. with any other impression on my mind than that of full assurance of its continued welfare and prosperity.

We may remark here that within 12 months of this date the price of the public funds had fallen nearly 20 p.c.; but as the So. had no distribution then pending, the members were not affected thereby.

In a new ed. of *A Short Account*, etc., pub. this year, an extra prem. is charged for *Hernia*, and to Beer-retailers. The announcement as to the extra prem. therefore stood as follows:—"An add. of 22 p.c. computed upon the prem. is charged for military persons; and an add. of 11 p.c. on officers on half-pay, officers in the Militia, Fencibles, and the like levies; on persons not having had the *smallpox*, or who have not been vaccinated; or having had the *gout*, or been afflicted with *Hernia*; and also on persons holding the magistrates' licence to retail beer."

There was also pub. during this year: *Case submitted by the Directors of the So. for Equitable Assurances on Lives and Survivorships to Messrs. Bell, Brougham, and Bickersteth, with their Opinion thereon.* (Lond. 1829, 8vo.) This we have already reviewed.

At this date Mr. Wm. Morgan and Mr. Arthur Morgan were "Joint Act."

1830.—The agitation was not by any means appeased by reason of the magnificent results—for those who partook in them—reported upon at the last gen. court. And at the quarterly gen. court held 4th March it was resolved:

That it be referred to the directors to consider whether it will be expedient for the So., and under what circumstances, to effect such an arrangement with the new insurers as may be advisable for the common interests of all the parties now insured; and that they report their opinion thereon to the next quarterly gen. court.

At such next court, held 3 June, the directors reported: "That it appears to the court that no arrangement with respect to the appropriation of the So.'s funds can take effect until after the expiration of at least one year from the decennial investigation." (See 1832.)

At the gen. quarterly court held 2 Dec. this year a circumstance occurred which deserves to be properly recorded—it was the resignation of Mr. W. Morgan from the position of Act. of the So. On this occasion he delivered the 9th and last of those Addresses which have since become historical. It was very short, and chiefly related to himself:

During the last two or three years I have felt myself unable to attend the gen. court; and it is with no inconsiderable degree of exertion that I now address you on a subject which has long agitated my mind, and which from its great importance to myself has rendered me very anxious to communicate it to this court. The advanced age of fourscore, of which more than 56 years have been engaged in the service of the So., will, I trust, require no other reason for my wishing to retire from my labours, to enjoy the few remaining days of my life in ease and quiet. In order to accomplish this end, the declining state of my health and spirits renders it necessary that the tie which has so long connected me with my present office should in a great measure be dissolved; and that I should no longer attempt to discharge the duties of it. It is not without sorrow, and a deep sense of the obligations I owe to

the So., that I resign my present office. . . . I am far from meaning that this resignation should sever me entirely from the So.; on the contrary, I shall never cease to be anxious for its welfare, nor (while my mental faculties are continued) to devote them to its service. During the long series of years which have passed away since my first appointment, I have witnessed the progressive prosperity of this So. I have witnessed it rising from a puny inst., consisting of a few members, and possessed of a cap. of a few thousands, to a magnificent estab., consisting of many thousand members, and many millions of cap.; diffusing its benefits to the families of its deceased members, and holding forth the prospects of equal benefits to those of its living members. With this view I am cheered under the pain I feel on the present occasion; and encouraged to express a hope in this my last address to the gen. court that the So. may long continue to enjoy and deserve the approbation of mankind.

Mr. Arthur Morgan was appointed to the office so long held by his father.

1831.—At a gen. court held 2 June, the following resolution was adopted :

That with a view to realize a part of the funds of the So. now invested in stock, obtain an increase of int., and assist proprietors, the directors be requested to take into consideration the legality and practicability of making advances by way of loan upon the pol. of the So. to such extent, and at such rate of int., and upon such conditions, as shall be approved by the directors, and also to obtain the opinion of counsel on the subject, and lay the same before the proprietors at the next quarterly court.

In consequence a case was prepared, and counsel were requested to advise. 1. Whether the directors or trustees are or can be authorized to "make advances by way of loan upon the pol. of the So.;" and whether any and what responsibility may be incurred if such loans can be made. 2. If the directors are or can be authorized to lend money on security of pol., whether there will be any legal difficulty in completing loans so made, and in acting on powers of sale, or any other powers or covenants to be given by the securities; and particularly whether there will be any difficulty in enforcing either at Law or in Equity such powers or remedies, in consequence of the borrowers and lenders being mutual assurers, or from any other cause. 3. Whether the original terms of the pol. will be affected in consequence of the loan, either as to forfeiture by non-payment of the prem. on the pol., or as to any of the other conditions of such pol.

The opinion on these points was as follows: We think that the directors are not authorized to lend money on the security of their own pol., which are merely personal securities, and produce no income for payment of int., and we think that a gen. court could not confer such authority. If this plan were feasible, we could not advise the directors to act upon it, as we foresee much practical difficulty in the remedies that it might be advisable to adopt. Signed Edward B. Sugden; J. Campbell; A. R. Sidebottom. Lincoln's Inn, 9 July, 1831.

Fresh regulations were made as regards the revival of lapsed or forfeited pol.

1832.—At a gen. court held 7 June, the directors made a rep. having reference to the resolution of the gen. court, 4 March, 1830. It is a most important document, and we propose to give it entire :

The directors have again taken into their consideration the reference made to them by the gen. court in their resolution of the 4th March, 1830, as to the practicability and expediency of an arrangement with the new insurers for the common interest of all. The terms of this reference are too general to convey to the directors any distinct view of the nature of the arrangement which might have been in contemplation when this reference was made to them. *But they have reason to believe that the arrangement contemplated is one whereby the old insurers should give up a part of the privileges which they derive under the bye-law of 1816, in order to be released from the restrictions to which they are subjected, on an equitable construction of their engagements with the new insurers.*

The directors are of opinion that it is to the arrangement of 1816 that the greatly increased advantages of the old insurers are to be ascribed; and that that arrangement secures to the So. an amount of bus. which perhaps cannot be permanently secured under any other plan. It is true that subsequently to 1816 the average number of new insurers has been diminished; but that circumstance is to be attributed in a great part to the estab. of new offices; and though it may be ascribed in some degree to the exclusion of new insurers from the benefits derived by the old, it is certain that that cause must operate proportionally with less effect as the number beyond the privileged 5000 diminishes; so that the So. may always depend not only upon the number of 5000, but also upon a considerable number beyond that limit.

It ought not to be omitted that *already some of the new insurers have come within the privileged number of 5000; and that the others will proceed in regular progression, as the number of the old members is diminished.*

The directors are not satisfied that either an increase of bus., the use of other T., the diminution of the reserve of one-third, or more frequent appropriation of surplus, would compensate to the old insurers the loss which they would sustain by giving up to the new insurers any part of their privileges. It would be no easy task to apportion with perfect equality, either what is to be given up by the old, or what is to be obtained by the new insurers; and the directors must observe that it would not be sufficient that any new arrangement should be advantageous to the old and new insurers, in their collective capacities, or even to a majority of each body: *if any one individual should suffer from the arrangement, it might be in his power to defeat the whole.* Nor indeed would any scheme of benefiting some members to the detriment of others be more consistent with the equitable principles of the So. than it would be consistent with law. A majority could not in this case bind a minority; and in order to avoid the risk of litigation, it would be necessary so to adjust the claims of each separate individual, as to preserve his interest unimpaired, not only in reality, but also according to his own conception. Without affirming that these difficulties are absolutely insurmountable, the directors confidently submit that no scheme ought to be adopted unless the advantages are both important and unequivocal. Such scheme they have not been able to devise.

Adverting to the communication made to the gen. court on 3 June, 1830, the directors have the satisfaction of now stating that the laborious investigation directed to be made with a view of forming a correct estimate of the prob. of life according to the experience of assu. made in this So. at every age—which estimate is obviously of the first importance towards the periodical ascertainment of the progress of the So.'s affairs—has been very nearly completed.

1833.—At a gen. court, 7 March, a statement of all the lives ins. in the So. from September, 1762, to January 1st, 1829, together with various Tables deduced from the same, was presented and ordered to be printed. [EQUITABLE SO., MORT. EXPERIENCE OF.]

Mr. W. Morgan died in May, aged 80.

At a gen. court held 6 June the following resolution was passed: "*That it be referred back to the directors to consider and report what are the relative interests in the surplus funds of the So. of the old and new insurers included in the privileged number of 5000, and of the new insurers not included in such privileged number.*"

At a gen. court held 5 September same year the directors submitted a report upon this question. The directors presumed that the intention of the court was merely to require a valuation of the property of the old and new insurers respectively, under the supposition that the So. was dissolved on a given day (which day for convenience they assumed to be the 31 December, 1832), and that each party received on that day the value of his pol. according to the then rules of the So. The value of 4948 pol. of the privileged class was, sums insured (less value of prems.) £2,641,565, and of the bonus add. thereon £3,630,035, making together £6,271,600. While the values of 3148 pol. of the new members (less value of prems.) was only £545,126. The proportions were therefore about 11½ to 1.

There was pub. during this year:—1. *The D. of Sett. of the So. for Equitable Assu. on Lives and Survivorships, as the same is enrolled in His Majesty's Court of King's Bench at Westminster, in the Year 1765. With the Bye-Laws and Orders, to which are appended Reports made on Various Occasions by the Court of Directors, and Nine Addresses by William Morgan, Esq., F.R.S., late Actuary of the So. 8vo., and some copies on large paper.* It is this ed. we have consulted in the preceding hist.

2. *Rep. made by the Directors at a Gen. Court of the Equitable So. holden on Thursday, the 5th of September, 1833.*

1834.—There was pub. in folio: *Tables showing the total number of persons assu. in the Equitable So. from its commencement in Sept. 1762, to 1 Jan. 1829, distinguishing their ages at time of admission into the So., and exhibiting the number of years during which they have continued members of it; the periods of life at which their assu. have terminated; and the ages which the surviving members had attained on the 1st Jan. 1829. To which are added Tables of the Prob. and Expec. of the duration of Human Life deduced from these documents; a Statement of the Disorders (as certified to the Court of Directors) of which 4095 persons assu. have died in 32 years ending 31 Dec. 1832; and a Supplement showing the Mort. of the So. for the years 1829, 1830, 1831, and 1832.* This work was prepared under the superintendence of Mr. Arthur Morgan.

These T. purport to have been printed for the use of the members. They furnish some facts of considerable interest. The total number of lives ins. from 1762 down to 1st Jan. 1829, was 21,398, of whom 6930 were living at last date; 9324 [nearly one-half!] had ceased to be members by the surrender, forfeiture, or discontinuance of their pol.; and 5144 [not quite one-quarter] had died. The insured had enjoyed amongst them 266,872 years of life, and one with another had been members of the So. about 12½ years. The ann. mort. had been 1'96 p.c. The T. revealed some interesting facts regarding selection—a great increase of mort. being observable among members of the same age, in proportion as they had been members of the So. for 5, 10, 15, 20, etc., years. [SELECTION.]

The general results of the T. will be given under EQUITABLE SO., MORT. EXPERIENCE OF.

1835.—When Mr. James Brown, Accountant, Edin., was conducting inquiries in regard to a new scheme of allocating the surplus in the *Edinburgh Life Office*, he made a full investigation into the scheme of the *Equitable So.*; but he appears to have come to the conclusion that the scheme of the *S. Widows*, which he states to be based upon that of the *Equitable*, with some modifications, is an improvement upon the orig. [vide his rep.]

1836.—1 Dec., ordered that the salary of the Act. be increased from £800 to £1000 p.a.

1837.—There appeared in the *Lancet*, 28 Oct., a paper contributed by Mr. T. R. Edmonds, *On the influence of Age and Selection on the Mort. of the Members of the Equitable So. during a period of 67 years ending 1829.* This will be reviewed in detail under EQUITABLE SO., MORT. EXPERIENCE OF.

1839.—At the gen. court, 6 June, the directors made a rep. to the members, of which the following are the more material portions:

The period being near at hand at which, according to the practice of the last 40 years, an appropriation is to be made of the surplus of the So.'s funds, the directors deem it their duty to lay before the gen. court their view of the principles upon which the appropriation should be made.

The proceedings of former years, and especially those of the year 1829, might appear to leave the board no option, but to make it imperative upon them to proceed according to that which has been adopted as "the accustomed mode," and which is fully explained in the case submitted in 1829 to Messrs. Bell, Brougham, and Bickersteth.

But in consequence of certain questions which have been recently put to the directors in the gen. court, as well as various proceedings which have occurred since the period of the last appropriation, the directors have thought it their duty to take again into their consideration the several matters which were agitated at that period and in subsequent years; and to consider whether any other than the accustomed mode would be more conformable to equity and good faith; would be equally secure; and at the same time afford to the members an equal or larger part. in the profits; for they adhere to the opinion expressed on the 7th June, 1832, that "no scheme ought to be adopted unless the advantages are both important and unequivocal." The board are impressed with the conviction that those members of the So. who have contemplated improvements have found the difficulties insurmountable.

One of the objects as to which the greatest anxiety has been felt, is that of a more frequent appropriation of surplus. Upon this point no question can arise now, unless the members are prepared, for the sake of an earlier repetition of the appropriation, to give up some portion of present benefit. But the directors are satisfied that a proposition to this effect would not be acceptable to the court.

To the use of T. formed from the "*Equitable Experience*," the attention of the directors has been called by a question put in the gen. court. There is no doubt but that the use of these, rather than of the *Northampton T.*, in valuing the liabilities of the So., would bring out a lower estimate of these liabilities, and therefore tend to increase the divisible surplus. If the [*Equitable*] *Experience T.* were used in valuing the liabilities for the purpose of the division, they must also be used in valuing pol. and add. when surrendered by the members, who would thus receive a proportionally lower price for such surrenders.

But the principal consideration in reference to this matter is, that the valuation by the *Northampton T.* is only one part of that estab. practice to which it is now proposed to adhere, and that the valuation of the Co.'s stock at the market price, from which great benefit will in all prob. be derived by those who share in the present surplus, could not be justified unless the whole of that estab. practice were adhered to.

The directors are of opinion that no new principle of valuation and division that could be adopted with any regard to equity and security, would yield to the present members a larger surplus than that which will result from the "accustomed mode"; and that any change therefore in that mode would be highly inexpedient, even if it were lawful to effect it, and no impediments were created by the legal and equitable interest of the new insurers.

The directors add by way of addenda :

A suggestion was some time since thrown out in the gen. court, that on any appropriation of profits, after that now approaching, those insurers who might have paid ten prem. prior to the declaration of such subsequent appropriation should share in that surplus, although they might not live until the day of such appropriation. *Disappointment arising from a person being very near to the attainment of a bonus, but losing it by a month, or week, or a day, must necessarily happen; and if the periods of division occurred oftener, these disappointments, though less intense, would still be more frequent than they now are.*

At a gen. court held 5th Sept., it was ordered—1. That the investigation and valuation of the pol., prem., stock, and effects of the So., and of the liabilities thereof, which is to be made on or as of the 31st Dec. next, be conducted according to the practice which has prevailed in this So. since the year 1816. 2. That when the surplus shall have been ascertained according to the accustomed mode, the directors do lay before this court a scheme for the appropriation of a portion not exceeding two-thirds of such surplus to the pols. entitled thereto, under the resolutions of the 17th Dec. 1816, and according to the plan followed in 1809, 1819 and 1829.

At a gen. court, 5 Dec., the results of the investigation up to the close of this year were made known. The actual surplus ascertained amounted to £4,454,254; of this £2,969,502 was distributed in the shape of an add. of 2½ p.c. p.a. for payments made prior to 1st Jan. 1840, on ins. dated before 25th May, 1824, constituting the oldest 5000 pol. on 1st Jan. 1839. A prospective addition at the same rate for those who should come within the privileged 5000, and die before 1st Jan. 1850, was also declared.

The total number of pol. in force at the close of 1839 was 7481, ins. (with bonus add.) £18,174,000. The So. had paid for claims under pol. during the preceding decennium £5,264,466; and a further sum of £1,281,347 for surrender of pol., making the total disbursements in the decade on these accounts £6,545,813! The number of members had decreased from 8867 to 7481. It was estimated that the payments during the next decade would amount to £7,250,000, of which above 4 millions would be in respect of bonus add.! The nature of the investments had been progressively changed by advances on mortgage instead of investments in the funds; thus funded securities, £6,695,250; on mortgages, £3,583,950.

It will not fail to be observed that the members who had been entitled to participate before this bonus was declared received a disadvantage instead of an advantage by its declaration. The prospective bonus had been at the rate of 3 p.c. p.a. The new bonus (which superseded the prospective one) was at the rate of 2½ p.c. p.a. only.

On this occasion Mr. Arthur Morgan, the new Act., delivered his first Address, which, if it displayed less power of rhetoric, evinced certainly more business exactitude. We mark for quotation one or two passages only :

The retrospective add. now proposed to be made to the several pol. of assu. exceed in amount any which the So. has ever before been able to afford; notwithstanding the great advantage derived in the division of 1829 by valuing the funded property of the So. near 20 p.c. higher than had been done in any former investigation—a circumstance from which the growth of the surplus in the present instance is in no degree to be attributed; notwithstanding, too, the whole number of assu. has somewhat decreased since 1829, and the cap., which has been found to have been vastly augmented in the course of every preceding decennial interval, has in the last 10 years been increased in a comparatively trifling sum. . . .

I know not whether it may have been generally expected that the rate as well as the amount of the add. would in every case be higher in this than in any former division, on account of the reduced number of the assu. dated prior to 1817; that it is not so is owing to the combined effect of the increased ages of the lives assu. by those pol., and to their each taking an add. now in respect of 10 more payments than they did in 1829. . . .

It should be observed, too, that as they are removed, their places are supplied by others, who succeed to partake of a portion of these advantages, and that the admission of the holders of about 230 pol. to parti. gradually in the surplus stock of the So. has now become a part of its yearly proceedings.

Accustomed to behold a vast ann. add. to the cap., and to associate with this accumulation the idea of increasing opulence and profits, many persons may be led to suppose, from witnessing a contrary order of events, that the So.'s profits have ceased, and that its surplus even is diminishing with its decreasing cap.; and therefore it may be necessary to impress on the court at this time that no accurate judgment can be formed of the state of the So., either from the increase or decrease of its cap., without a due regard to the ages of the members, and the amount and long standing of their respective assu. For such a So. may, in its earlier stages, be increasing in number, and adding every year large sums to its cap., and at the same time be proceeding in a course which must inevitably terminate in disappointment and insolvency; whilst, on the other hand, another and older so. of the

same kind may be decreasing in number, and compelled to have recourse to its cap. from the insufficiency of its income to meet the ann. demands upon its funds, and yet be not only solvent, but opulent, and have a large reserved fund accumulating at compound int. for the security and future benefit of its surviving members. . . .

The approximation of the ann. expenditure to the income, and the ultimate excess of the one over the other, which from the nature of this inst. were sooner or later to have been expected, have been much accelerated by the increased value of the So.'s funded property at the period of the last investigation, and by that property maintaining the same high price at the present time. The So. has thus been enabled to make an immense increase in the claims on the oldest 5000 assu., without possessing or receiving a corresponding increase of income. . . .

In the long course of more than three-quarters of a century during which this So. has now existed, no investigation of its affairs has, I believe, been more important than the present: nor has any period afforded more valuable or satisfactory information than is to be gathered from the experience of the last ten years. The sudden add. of near 5 millions which was made to the liabilities of the So. in the last division of its surplus stock, though it could scarcely fail to afford the highest satisfaction to the members who parti. in that division, could not well be regarded without some anxiety from the unprecedented extent of the measure, and its having been partly founded on an unusually high estimate of the funded property of the So. It becomes a matter of great interest therefore, when a measure of nearly equal magnitude is about to be adopted under similar circumstances, to ascertain the effect which the add. of 1820 were calculated to produce on the ann. expenditure, and what has been the result of them on the financial transactions of the So. since that time. . . .

But the surrender of near a million of these add. for their present value within a short time after they were declared, whilst it has checked the accumulation of cap. on one hand, has on the other reduced the ann. claims about £31,500; and the increase in the sums paid for add. to the claims in the last 9 years, compared with the payments for add. to the claims between 1820 and 1820, instead of £117,000, has on an average been little more than £85,000 a year. . . .

The amount now assu. on lives between the ages of 60 and 90 exceeds the amount of assu. on lives of the same ages in 1820 by more than half a million; and though the add. made to the claims will in the aggregate be less in the present than in the last division by nearly a fifth, yet above 3 millions will be apportioned on this occasion amongst those older members, which exceeds the sum allotted to members of the same ages in 1820 by upwards of £870,000. What portion of these rev. benefits may be sold to this So. after the 1st Jan. 1840, cannot now be known; but if they were restricted to be paid only together with the sums originally assu. at the deaths of the members, about one-sixteenth of them, or £100,000, would, according to the experience of former years, come to be discharged ann. in claims; if to this be added the increased payments for the add. now proposed on the younger lives, it may be calculated that (allowing for the lapse of the prospective add. on account of which £66,000 a year is now paid) the ann. expenditure would be increased by £140,000 in consequence of the present division, and be raised to above £700,000. . . .

19 Dec.—New regulations were made for election of auditors.

1841.—The remuneration of the directors was increased to £2000 p.a.

1842.—There appeared in the *Lancet* a paper contributed by Mr. T. R. Edmonds: *On the Mort. of the Members of the Amicable and Equitable Assu. Sos.* This will be reviewed under EQUITABLE SO., MORT. EXPERIENCE OF.

1849.—At a gen. court 6 Dec. the results of the decennial investigation up to 31 Dec. this year were made known. The entire surplus was £3,215,503, of which sum £2,113,372 was distributed in the shape of an add. of £2 p.c. p.a. on those pol. entitled to parti. from the date of their being so entitled.

The number of pol. in force was 6044, ins. £8,305,494, with bonus add. thereon of £2,974,614. The income of the Society from premiums was £245,149; the assets in hand, £8,858,047. The entire *expenses of management* up to this date had reached only £418,236. If a commission of 5 p.c. had been paid on the premis. received, it would have amounted to £953,381 16s.

Mr. Arthur Morgan delivered his second Address, from which we draw the following elucidatory passages:

The rate of add. (£2 p.c.) will indeed be less on the present than on either of the 3 preceding divisions of profit; but it will be seen that the amount added to the pol. of every member assu. with the So. before the year 1817, with a very few exceptions, exceeds, and in many cases exceeds considerably, the add. made in any previous division. . . .

The parti. of the members who have joined this So. since 1816, in the divisions of the surplus stock, has, it must be confessed, been more gradual than, from the proportionate number of assu. which had been cancelled in many previous years by surrenders and forfeitures, as well as by deaths, was at that time expected or prob.; nevertheless the system estab. in 1816 will on examination be found to have conferred benefits of considerable magnitude on these members, and to afford them a prospect of realizing, at no distant date, much more extensive benefits hereafter.

But the expectations of new members, although postponed by the regulations of 1816, were not, as was justly observed on a former occasion of this kind, "taken away"; the provision remained, that the profits from all sources should be left to accumulate for periods of 10 years, and that *one-third* at least of the surplus should be always reserved for the benefit of future as well as of present members; and the result, as appears by the accounts now laid before the gen. court, is, that notwithstanding the enormous sum paid in add. in the course of the last 30 years to the families of its deceased members, the So. now possesses a capital larger by upwards of £1,750,000 than it did on the 31 Dec. 1816—has at this time to apportion among the restricted number of 5000 a larger surplus than was shared in 1819-20 among more than 8500 pol., and consequently retains a larger reserve for the benefit of the members assumed since 1816, who now take a greatly preponderating interest in this large accumulating fund, and in the accumulating profits which are to be divided together with it at the end of the ensuing decennial period. . . .

And whilst the members assu. before 1817, by an undeviating adherence to their compact with the members who have since joined the So., have thus placed the interests of the latter in so commanding a position, the benefits they have themselves realized are, I believe, altogether unparalleled.

The aggregate amount of the add. declared—

In 1819	was	£3,300,000	on	£11,235,507	assu. being	20'37 p.c.
1829	"	5,036,379	"	7,826,829	"	64'3 "
1839	"	3,850,295	"	5,065,948	"	76'05 "

and the add. now proposed amount to £2,061,596 on £2,627,441 assu. in these remaining pol., being after the rate of 78'40 p.c.; making with the add. on the 3 former occasions a total of £14,248,270

added on these pol. since the restriction was imposed in 1816 on the number of assu. which should thereafter partake at one and the same time in the appropriation of the surplus.

The limitation of the pol. parti. together in the profits to a constant number is, I believe, peculiar to the constitution of the *Equitable So.*; and its operation limits also the whole number of members of which the So. can reasonably be expected to consist; but it may confidently be expected to secure a sufficient number always to recruit the parti. body with assu. of 6 or 7 years' standing: this according to the ann. diminution experienced in the oldest 5000 assurances during the last 19 years would result in a total of 7000; and although the assu. existing in the So. at this moment are reduced in all below that number, I have little doubt of its being again attained when the operation of the 40th bye-law [1816] comes to be tested by further experience, and more fully understood by the public. To effect this increase will require but a comparatively small accession to the numbers of new members in future years; for supposing no forfeitures or surrenders to take place among them, 160 pol. ann. effected on lives between the ages of 30 and 40 would, according to the experience of the duration of lives in this So., keep a constant body of 5000; 190 pol. would keep up the present number of 6000; and 225, the increased number of 7000.

1850.—The change which had fallen over the fortunes of the So. during the last 20 years was too transparent to be any longer disguised. While for some years before 1829 every effort had been made to restrain members from joining the So., the course now to be pursued was to employ every gentle artifice permissible to induce them to do so. The bye-law of 1816, regarding which so much has been said, was in our view but a measure of temporary expediency; and it was a mistake to engraft it into the permanent constitution of the So. The directors appear to have arrived at this conclusion about the date at which we have now reached, as will be seen by the following case laid before counsel:

With a view of increasing the bus. of the So., the directors have had under their consideration a plan for removing part of the restrictions imposed by the bye-law 40 [1816]; and it has been suggested as one mode for increasing such bus. that the said bye-law should be altered by enacting that in the division of the surplus of the funds of the So. to be made in 1860, and all subsequent divisions, the add. to every pol. that shall be at that time within the oldest 5000 be calculated from the date of such pol. respectively, instead of from the date of the admission of the pol. into the oldest 5000, as at present, in consequence of the bye-law of December 19, 1816.

The effect of this alteration will be obviously for the benefit of all the persons now assured not included in the limited class of 5000, and it will diminish the proportion of profits to be allotted to the pol. dated prior to 1 January, 1817, unless compensated by the profits on the increased bus.

Counsel were requested to advise "whether a bye-law or order could legally and effectually be made by the gen. court for altering the distribution of the profits of the So. amongst the present and future members thereof in the manner before suggested." They say:

The effect of the proposed change would be to alter the relative shares of the pol. prior to 1817, and of the subsequent pol. included in the parti. class in the fund which is the subject of add. to the pol.; and assuming the fund to continue the same, the alteration would be to the prejudice of the pol. dated prior to 1817. The further effect might be so far to increase the fund to be divided, that the positive share added to the last-mentioned pol. would be thereby increased; but this compensation is merely speculative and precarious, and we think that the proposed alteration of the 40th bye-law would be open to question by any of the class who might be aggrieved by the change.

Signed, John Romilly, Richard Malins, C. W. Christie. Dated 23 Aug. 1850.

This opinion was read before a gen. court on 5 Sept. 1850; and on this occasion Mr. A. Morgan read a further Address, from which we draw the following passages:

It is, I know, the opinion of many members—assured both before and since the 1st Jan. 1817—that the alteration made by the gen. court was injudicious, and has proved injurious to the general interests of both classes of members; and it has been suggested that it would be advisable to revert, on future appropriations of the surplus, wholly, or in part at least, to the principle which would have regulated all former appropriations, *had the plan of the Act, and Directors been carried out in 1816 entire.* The suggestion has, I have reason to believe, been made from an idea: (1) that the members assured prior to 1817 will be reduced by the end of 9 years to a comparatively small number; (2) that the amount of their share of the surplus might first be set apart; (3) and that the other members might redistribute their portions of the surplus, on the same principle which was followed by their predecessors, *i.e.* by allotting add. to their several pol. in respect of all ann. payments made upon them since their respective dates, instead of the dates of their respective admissions within the privileged number of 5000.

I have made a variety of calculations and estimates with a view of testing the feasibility of this scheme (*which I own I have looked upon with much favour*), but am constrained to report that, tested by calculation, it utterly fails; for it can be clearly shown that such an alteration, if *now* introduced, although it would leave a certain number of the members assured since 1816 in the same position as they would be in if the present method of distribution be adhered to, would injuriously affect the older members of that body in the next division of the surplus; and this is more particularly objectionable, inasmuch as these are the members who have been debarred the longest from a parti. of profits by the bye-law of 1816, and to whom, as I have stated in my last Address, . . . will be allotted a very large proportion of whatever surplus may come to be divided in 1860, provided that no alteration be made in the present mode of distribution.

It is, in my opinion, impossible at this time to alter the present mode of distributing the surplus among the present members without injuriously affecting the interests of a great many of them. . . .

On more than one occasion, when measures of this kind have been under consideration, it appears to have been contemplated, either to close the office entirely, or to declare the whole of the surplus stock to belong to the then existing members; but the legality of such a step appears to have been doubted even before the enactment of the bye-law of 1816; and certainly could not now be taken, I believe, without the consent of every existing member. This of course renders it impracticable. . . .

The true policy of the present members (in my opinion) still consists, as it did in 1796, in 1810, and in 1816, in restrictive measures, and in retaining for their own benefit and security the greater part of the advantages in their actual possession. . . .

A number of examples are then given in support of this view.

The number of new ins. effected with the So. this year was 126 whole-life, 1 joint-life, ann. ins. together £135,500, and yielding in prems. £5663. Also 2 survivorship annu.

The claims were on 204 lives, upon which were 257 pol., ins. £355,600, and carrying bonus of £398,429 in add.

During this year there was pub. : *Rep. made by the Act. at a Gen. Court of the Equitable So., etc., held on Thursday, 5th September, 1850.* (Lond. 8vo.)

1851.—The new pol. issued were 101 whole-term, ins. £94,950, yielding in prems. £2905 6s.; with 3 deferred annu. and 1 survivorship ditto. The claims were in respect of 176 lives, on which were 212 pol., ins. £323,720, and carrying bonus of £395,720 in add.

Up to this date the So. had paid in claims (including bonus add.) £22,000,000.

1852.—A special gen. court held 17 June to take into consideration the following proposition :

That it be referred to a committee of 5 of the assured before 1 January, 1817, and 5 since that date, to investigate and rep. upon the state of the So., and whether any plan can be recommended for more effectually carrying out the orig. principles on which the So. was constituted, in a manner which will be advantageous to those at present insured, and inviting to the public; and that such rep. be presented at one of the quarterly courts to be held in September or December next, or at a court to be called by the Actuary specially for the purpose of receiving and considering such rep.; and that such committee shall have power to call for any evidence they may think necessary in the course of such investigation.

A long discussion followed, in which on one side it was urged that something must be done to keep the So. from dying out; on the other that these frequent discussions were detrimental, and prevented persons from joining the So. on the ground of internal disagreements. On a division, the proposition was negatived by 64 to 25.

The new pol. issued during the year were 121, viz. 112 whole-term, ins. £140,260, yielding in prems. £5123 2s. 6d.; 3 joint-life, ins. for £1900; 4 endow. annu.; 2 survivorship annu.; bringing up the new prem. receipts to £5448 8s. 6d. The claims were on 171 lives, carrying 215 pol., ins. £327,562, and carrying bonus add. of £362,619 beyond.

1853.—In the 12th Rep. of Reg.-Gen., pub. 1853, there was given a *Valuation of the Assets and Liabilities of the Equitable So. from a statement of the sums ins. and the prems. payable on lives of ages varying from 20 to 92.* This we shall deal with under EQUITABLE So., MORT. EXPERIENCE OF.

In the *Assu. Mag.* [vol. iii. p. 366], pub. 1853, there is contained 5 orig. T. based upon the *Equitable Experience*, and calculated by the late Mr. Peter Hardy. The chief of these will be given under EQUITABLE So., MORT. EXPERIENCE OF.

The new pol. issued during this year were 132, of which 127 were for whole-term, ins. £157,850, and yielding in prems. £5676; the remaining 5 pol. were of varying descriptions. The claims for the year were in respect of 176 lives, carrying 203 pol., ins. £257,682, having bonus add. of £303,352 beyond.

1854.—In the 4th ed. of McCulloch's *British Empire*, vol. ii., 1854, there is contained in the art. "V. Statistics," from the pen of Dr. Farr, a classification of the diseases or causes of death of the 4095 members of this So. who had died during the 32 years 1801-32.

During this year there was pub. :—1. *The D. of Sett. of the Equitable So., with the Bye-Laws and Orders.* (Lond. 8vo.) 2. *Reports made on various occasions by the Court of Directors. Cases submitted to Counsel, with their Opinions thereon. Nine Addresses by William Morgan, Esq., F.R.S., and three Addresses by Arthur Morgan, Esq., F.R.S., etc., etc.* (Lond. 8vo.)

1855.—6 Sept.—1. The charge of 5s. per £100 ins. for *Entrance Money* was abolished. 2. Surrender value to be paid in case of suicide. 3. Claims under all pol. to be paid at the expiration of 3 months after proof.

In this year there was pub. : *Supplement to Short Account, etc., by the Actuary.* (Lond. 8vo.)

1856.—The limit to be ins. on any one life increased to £10,000.

1858.—Resolved that loans might be made on the So.'s pol.

1859.—Mr. C. J. Bunyon, M.A., opened the bonus campaign of 1859 by the pub. of *A Letter to the Members of the Equitable So. respecting the coming Bonus, and their prospects for the future*, wherein the position of the So. is discussed with the ability we deem it right to expect from so accomplished a writer. Mr. Bunyon admits that "with a constantly increasing body of insurers, and a rising stock market, it would not have been easy to have framed a scheme which should have given larger bonuses than the *Equitable* plan of division; but when these conditions are reversed, it is important to consider whether the system may not prove as prejudicial hereafter as it has been in past times beneficial." The three sustaining causes of the former rate of bonus had now ceased: the prems. having been adjusted to a scale more nearly approaching the true one; pol. were rarely discontinued, and when so only on a full surrender value; and the funded property now forms a serious cause for apprehension rather than of prospective advantage. The question now arose as to what had better be done. Three modes obviously presented themselves: (1) by the distribution of the rest, or undivided third of the surplus, at the present division, in proportion to the prospective expectations of the insurers in the future bonus; (2) the termination of the So., by the rejection of all future applications to

effect ins.; (3) the alteration of the terms upon which new members are to be permitted to parti. The merits or otherwise of these several plans are discussed in detail. Regarding the second, he says:

The So. might be closed against new insurers, and wound up, somewhat after the manner of a tontine, upon its present system. This would be consistent with the rights of all persons now interested, and would be a course not unprecedented in the hist. of assu. cos. It would recommend itself by its simplicity, and by leaving the respective interests of the several pol.-holders unaltered as between themselves. It might be carried into effect indirectly, by largely increasing the rates of prem. for new insurers.

The third proposition, however, he thought, might prob. be adopted with less difficulty than any other. "It would disarm opposition by offering an equitable adjustment of the interests of present and future insurers, while it left unaffected the rights of parti. acquired by contract by the former members." He considers the bye-law of 1816, "however unscientific and unreasonable," to be a notable precedent for an adjustment of interest, and proceeds:

That some alteration is required in the constitution and management of this So. is admitted by most persons who have paid any attention to its affairs; but owing to their complicated character, it is difficult to decide with certainty upon the system upon which they ought in future to be conducted, without more elaborate inquiries than can be made without access to its registers. *That no further ins. should be taken until such an investigation has been made with a view to ascertain the policy which will be the most eligible hereafter is the conviction of the writer.* . . .

He again reverts to the character of the investments:

In discussing the affairs of this So., it is impossible to avoid adverting to the risk which it runs from the magnitude of its investments in the funds. The rise in the values of stocks during the first half of the 19th century has been prodigiously beneficial to it; but the benefit having been obtained, the hazard of the investment is very great. After the present division the surplus will amount to £773,060. The stock, however, exceeds £3,300,000, or a moiety of the entire cap.; and having been valued at the price of the day, a fall of 20 p.c. in the stock market would be sufficient to swallow up the whole of the surplus. Is such a depreciation impossible? . . . We are so accustomed to the range of high prices of the last 36 years, as to look at the low prices of the preceding 50 years as quite unnatural to the security, and unlikely to re-occur. But when we examine the past hist. of the price of the funds, we find that the middle of the last century exhibited a higher range of prices than the present, . . .

Finally:

The writer of this pamph. has only to add, that these remarks are made in the most friendly spirit, both to the So. and its management, and have been put forth by him as an insurer, interested in its prosperity, with the view to the consideration of the points which appear to him of the deepest importance to it, and which might be neither fully understood nor supported, if brought forward in the first instance in the hurry of a gen. meeting.

1 Nov.—The amount of surplus as at the close of the decennium was found to be £2,271,099, of which £1,514,066 was distributed in the shape of a bonus at the rate of $1\frac{3}{4}$ p.c. p.a. to pol. entitled to parti. The amount of Gov. securities held, taken at the price of the day, was £3,197,481.

It was found that there were 4679 pol. in force, ins. £6,262,000. This was the first occasion since 1816 that the pol. had been reported below 5000; but even now these were not all entitled to parti., from the circumstance that several hundreds of them had not been sufficiently long in force.

Mr. Arthur Morgan, in his Address on this occasion (1 Dec.), said:

The continued diminution in the *periodical* rate of these add. may be unexpected on this, as it has been on former occasions; but it is (except under peculiar circumstances) an inseparable result of the constantly extending number of the ann. payments embraced in the calculations, and the increasing age of the members on whose pol. the add. are allotted—the effect of which is strikingly illustrated in the facts, that it requires a larger sum to provide for a further add. of £1 p.c. on the claims at this time, when the assu. are reduced in number to 4679, and the sums ins. in them to £6,260,000, than it did in 1820, when the parti. number was above 8500, and the sums assured by them exceeded £10,000,000; and that it now requires £434,000 to provide for an add. £1 p.c. on those 3900 assu. only, which have been effected since 1816, are now in existence, and amount to £5,141,000. Whereas £390,000 was sufficient to provide for a similar and more extended retrospective add. of £1 p.c. on 7303 assu. existing 1 Jan. 1810, amounting together to £8,023,928. The add. made on this occasion to the pol. dated prior to 1817, ranging from £113 15s. p.c. on the oldest, to £77 p.c. on the most recent of those pol., are of a magnitude that require no comment. . . .

But the distinguishing advantage which the insurers since 1816 now possess is the unrivalled one of a vast cap., due, I venture to assert, not so much to the accumulation of their own contributions, as to the wise regulations, the moderation and frugality of those that preceded them, who improved the resources of the So. in a period of favourable circumstances—never likely to occur again. This cap., though reduced by the very large add. to the claims with which it has been charged in the course of the last 30 years, in which period (including those now made) the add. have amounted to 14 millions! (of which no less than 10 millions have been liquidated)—this cap. bears a greater proportion to all the sums now to be charged upon it than it has done on any similar occasion, making in the comparison due allowance for the larger proportion of old lives now assured in the office. . . .

The ann. admission of any number of new members under the restrictions now remaining in force will unquestionably improve the interests of the aged members of the So., and indeed of every present member whose pol. may become a claim within the next 30 years, and moreover tends to strengthen and enrich the So. from a source whence has constantly flowed a large measure of security and success in former years—I mean the higher prob. of life prevailing among newly selected lives than in the T. from which the ann. prems. are computed; and having now been engaged in keeping the accounts of this So. for nearly 40 years, I feel justified in warning the gen. court against the adoption of any measures having a tendency to diminish this source of profit, or to close it altogether.

A proposition of this kind has found favour and been promulgated of late by some members whose pol. are of very recent date, and who of course cannot have contributed much to, or received much from, the surplus. But who, even among these, shall say that his pol. may not be among the earlier claims, and his own interest prejudiced by the very measure he would adopt to improve it?

The present reduction in the number of pol. does in fact render the conditions on which future

members shall, for some time at least, be admitted, identical nearly with those proposed by the directors to be enacted in 1816, and recommended in the Address of the late Act. And it is worthy of remark that, in recommending the bye-law in its orig. form, he calculated—from the number of surrenders, which had been 1 in 5 p.a., and the deaths, which had been 1 in 60 in the preceding 12 years—the admission of future members would be so much accelerated, that the term would not be prolonged beyond that allotted by the 36th bye-law; and that were it to depend on deaths alone, it would be postponed too long. Owing, however, to the add. value imparted by the new regulations to all existing pol., the number of subsequent forfeitures and surrenders did not correspond with these calculations. He contemplated, therefore, that future members would be admitted in 7 or 8 years after commencing their assurances to part. gradually in the profits of the So., rating their add. from the dates of their pol. Nor did he apprehend that these new members would inflict a loss on those that preceded and shared the general profits with them; on the contrary, he considered that, assuring on these conditions, they would add to the usefulness, the prosperity, and the credit of the So.

But it may be objected that the limitation of the add. by the present law to the payments made on pol. subsequently to their becoming included in the 5000, makes a difference in this respect at the present time. Undoubtedly it does, but not to the extent generally supposed. . . .

The reasons for which he proceeds to explain.

1860.—Mr. C. J. Bunyon pub. *Supplement to a Letter addressed to the Members of the Equitable So.* This consists in the main of a rejoinder to the statement of the Act. of the So. at the gen. court that the ann. admission of any number of new members would unquestionably improve the interests of the aged members, and indeed of every member whose pol. might become a claim within 30 years. The argument is illustrated by hypothetical examples.

At the gen. court held in March, a proposition was submitted: "That no pol. to be hereafter issued shall be entitled, at the first or any subsequent division of profits in which it may part., to bonus add. in respect of any prem. prior to the 7th ann. prem." This was negatived.

At a gen. court, 6 Sept., Resolved that the directors shall be at liberty to invest the moneys of the So. at their discretion, and as from time to time they may judge most expedient and beneficial to the So., in all or any of the following add. securities. 1. The public securities of the Gov. of British India. 2. East India Stock. 3. Bonds, mortgages, debentures, or other approved securities of any cos. incorp. by special Act of Parl. which at the time of making the investment shall be in the course of payment of dividends upon their paid-up cap. orig. subs., provided that the dividends so in course of payment shall be at the rate of at least 3 p.c. p.a., and dividends thereon at not less than that rate shall have been paid for at least 3 years before the time of making the investment, and provided that such debentures shall be repayable at periods not exceeding 7 years. [See 1865.]

1863.—3 Dec.—The directors were empowered at their discretion to remit the charge of 15s. p. £100 ins. now charged for non-appearance before the board.

1864.—A most remarkable instance of bonus accumulation was reported in 1864, in connexion with a claim upon the policy of Mr. J. W. Freshfield, of the eminent firm of solicitors of that name. Mr. Freshfield ins. in the So. in 1802, when he was 28 years of age, for £5000; he died at the age of 90, and the amount paid to his family was £27,512 10s.—the bonus add. being no less than £22,512 10s., or four and a half times the sum orig. ins. On the other hand, the value of the prem. paid improved at int. would present a much larger total. But he might have been ins. in an unproductive office.

1865.—6 Sept.—Resolved that the directors from time to time, when and as they judge most expedient and beneficial to the So., may invest moneys of the So. in any of the ways following, and the securities which they may so take shall be in add. to the securities already sanctioned by the bye-law (No. 14) of September, 1778, and the bye-law (No. 58) of September, 1860, respectively, that is to say: 1. On the security as well as in the purchase of the stocks, bonds, mortgages, debentures, and other securities specified in the bye-law of 1860. 2. In the purchase or on the security of any stocks, funds, shares, mortgages, bonds, or debentures, whether home, colonial, or foreign, the payment of the dividends and int. whereon is then guaranteed by the Gov. of the U.K. or of British India. 3. On the security of any rates or other like property arising within the U.K.

In this year Mr. Arthur Morgan pub. *A Reply to the Statements of the Scottish Widows Fund regarding the Equitable.* The Act. of the *Equitable* complained of the statements made by a pol.-holder in that So., under a misapprehension, being promulgated by means of adv. and prospectuses by the *S. Widows*.

1866.—6 Dec.—Resolved that all such members of the So. as are otherwise eligible for the office of director shall be eligible for that office, notwithstanding that they may not dwell within the City of Lond., or within 20 miles thereof.

1869.—At a gen. court of the So. held 2 September, 1869, Mr. W. F. Pollock, the chairman, in replying to the obs. of members, said that the So. had never, during the century of its existence, paid any agency commission, and had "in consequence" distributed among the representatives of its deceased members during that period the enormous sum of £1,840,000 more than would have been paid had the bus. of the So. been subject to commission. This sum he regarded therefore as having been saved to the So. and its members by the non-payment of agency commission.

At the decennial investigation to 31 Dec., the surplus was found to be £1,741,019, or which £1,155,339 was distributed, giving a bonus at the rate of 1½ p.c. p.a. to all those pol. entitled to participate therein.

The entire pol. then in force were 3785, ins. £4,911,496. There were 17 survivorship annu. carrying £1398 6s. p.a., and 8 annu. payable after an assigned time for £696 17s. 6d. p.a.

The new bus. of the year consisted of 134 pol. ins. £175,690, yielding in prems. £7620. The claims paid during the year in respect of 118 lives ins. under 135 pol. for £181,850, upon which bonus add. had accrued of £197,340. The current expenses of man. of the year were £7730. The total assets of the So. amounted to £4,609,736, of which but £1,026,937 10s. consisted of funded securities.

1870.—At the quarterly court held 3rd March, Mr. Arthur Morgan resigned his appointment as Act. of the So., which he had held for 40 years, since the resignation of his father in 1830. He died seven days after his resignation. He and his father had occupied the post of Act. for 96 years. Mr. J. Ware Stephenson was appointed the successor to Mr. A. Morgan.

In this office has occurred the most remarkable instance of longevity in connexion with insured life on record. Wm. Luning (a Hanoverian by birth, but naturalized in Eng.) insured his life for £200 in this So. in 1803, being then 36 years of age. He died on 23 June, 1870, aged 103 years 1 month and 4 days. His referees spoke of the life as good; he had had smallpox. His pol. had increased by reason of successive bonus additions to £1292 10s. All the facts regarding his birth, parentage, and age, have been proved by clear documentary evidence.

In 1870 the So. issued 245 new pol., ins. £257,310, and yielding in new prems. £8395. The claims paid in the year amounted to £214,535, with bonus add. thereon of £239,323—being at the rate of 111½ p.c. on the sums originally ins.

1872.—A new ed. of *Short Account*, etc., was pub. It states that the So. had issued above 40,000 pol. since its commencement, and had paid in claims £19,500,000, with bonus add. thereto of £14,000,000, the add. being equal to nearly 75 p.c. on sums ins.—the claims and bonus add. together amounting to £33,500,000!

There can be no doubt that the So. has in the present decennium entered upon a new phase of existence. The panic occasioned by the failure of the *Albert* and the *European* naturally turned attention to the older institutions, and foremost among these stood the *Equitable*.

1873.—The So. issued 198 new pol., ins. £241,275, yielding in new prems. £10,538. The claims were £156,429, carrying bonus add. of £179,861, being equal to 115 p.c. on the sums orig. ins. The income of the So. was £330,482; and the expenses of man. £7373, or 2½ p.c.

By way of supplement to the preceding hist., we have prepared the following T. It marks the financial position of the Society at each period of actuarial investigation, and consequent appropriation of surplus. There were indeed several other appropriations of surplus made without such investigation, viz. on 3 occasions, 1781, 1791, and 1795. At first the investigations were not made at stated intervals—the D. of Sett. having simply provided (clause 70), “that when and as often as it shall appear,” etc., “that the stock of the said So., arising from prems., is more than sufficient to pay the claims,” etc., then, etc. But from 1799 the practice of decennial investigations was instituted.

T. showing the leading financial features of the So. as exhibited at each investigation of surplus :

Year ending 31 Dec.	Total pol. in force.	Total ins. in force.	Life Assu. Fund.	Surplus distributed.	Claims paid, including bonus.
		£	£	£	£
1776	913	...	60,000	11,000	... ..
1786	2100	977,330	...	54,000	... ..
1792	4640	2,976,476	500,000	99,000	... ..
1799	5124	3,900,000	1,000,000	258,000	... ..
1809	7320	8,024,000	4,330,000	975,224	... ..
1819	9650	...	6,235,000	2,000,000	... ..
1829	8867	12,417,630	10,411,540	3,408,552	... ..
1839	7481	14,080,247	10,689,932	2,969,502	... ..
1849	6044	8,305,495	8,858,047	2,113,372	... ..
1859	4679	6,262,000	6,564,671	1,514,066	... ..
1869	3785	4,911,496	4,609,736	1,155,339	About 32,000,000

The successive Actuaries of the So. have been : 1756, Mr. James Dodson ; 1762, Mr. Wm. Mosdell ; 1764, Mr. James Dodson, jun. ; 1767, Mr. John Edwards ; 1774, Mr. John Pocock ; 1775, Mr. Wm. Morgan ; 1829, Mr. Arthur Morgan (Joint Act. with Mr. Wm. Morgan) ; 1830, solely ; 1850, Mr. John Ware Stephenson.

The Assistant Act. : 1773, Mr. Wm. Morgan ; 1815, Mr. Thomas Cooper ; 1818, Mr. W. Morgan, jun. ; 1823, Mr. John Stephenson ; 1829, Mr. John Scott Martineau ; 1845, Mr. Geo. Train ; 1854, Mr. John Ware Stephenson ; 1870, Mr. W. Morgan.

We have endeavoured in the preceding sketch to portray the origin and development

of this great So. in a manner not unworthy of it; and we hope in a manner that will be essentially useful to those who may have occasion to consult its hist. But our task is not even yet completed. We have already said that there are those who regard the hist. of the *Equitable* So. as the hist. of Life Ins. in Gt. Britain. In a certain qualified sense this is true. The So. stood out prominently before the world for many years; and, indeed, at one period was almost regarded as a national inst. Hence it was compelled to be just and even liberal in its conditions: and so it came in many respects to be the model which other inst. followed; and to which they looked for guidance on points of practice. In this view, then, we propose to add an alphabetical and chronological synopsis of the practice of the So., which will be of value for reference on the same subjects all through these pages. We regret that so much add. space must be occupied: but to be useful such a synopsis must be complete.

SUB-HEADINGS.

Admission of Members.—1762.—No person was to be permitted to attend at the weekly courts, “in order to make assu. with the So.,” who had not at least 6 days before “made known to the Act. his intention of making such assu.,” and signed the *Declaration*. See *Notice of Intention to Ins.*

Agency Commission.—The So. never allowed any. See 1869.

Annuities.—In the orig. Deed (clause 74) it was provided that the So. might grant an annu. to a person holding an assu. pol. on which a death had occurred.

In a statement of the position of the So. in 1769, prepared under the authority of a committee of members, we find it stated, “We have already suffered much by many prems. settled by Mr. Mores on assu. of annu. which are not warranted by our Deed.”

1771.—March.—It was ordered that the directors be empowered to assure either a gross sum or an annu. to be paid to children after they shall have attained the age assigned; also to grown persons, if the life on which the assu. is made shall be subsisting at the time assigned.

In June, same year, it was resolved that the court of directors be empowered to assure annu. for life or lives to any person for a gross sum in hand paid, subject to the following restrictions:

(1) That the amount of any annu. or annuities to be granted upon any one life do not exceed £100; (2) that annu. granted upon any life of the age of 45 years, or under, do not exceed the rate of £6 p.c. of the purchase-money; (3) that annuities granted upon any life between the ages of 45 and 50 do not exceed the rate of £6 and one-half p.c.; (4) that annu. granted upon any life between the ages of 50 and 55 do not exceed the rate of £7 p.c.; (5) that annu. granted upon any life between the ages of 55 and 60 do not exceed the rate of £7 and one-half p.c.; (6) that annu. granted upon any life between the ages of 60 and 65 do not exceed the rate of £8 and one-half p.c.; (7) that annu. granted upon any life between the ages of 65 and 70 do not exceed the rate of £9 p.c.; (8) that no annu. whatever do exceed the rate of £10 p.c. of the purchase-money. And that towards securing the payment of the several annu. from time to time subsisting, a fund be always reserved of two-thirds at the least of the sums orig. paid for the purchase thereof.

The annu. bus. we believe was never large. In 1829 there were only 35 survivorship annu. in force for £4367 10s., valued at £14,297 13s., and 5 contingent annu. for £1250, valued at £2256 6s. 6d.

Appearance before the Board.—1770.—Gen. court, 27 June, the following bye-law was passed:—“That the practice of taking an increase of prem. upon the dispensing with the appearance of the party on whose life assu. is made, be discontinued, and that instead thereof an add. after the rate of 15s. for every £100 assu. be made to the *entrance-money* upon every assu. exceeding the term of one year, and after the rate of 7s. 6d. for every £100 upon assu. made for the term of one year or under.”

1863.—3 Dec.—Directors empowered to dispense with the extra 15s. per £100 for non-appearance, at their discretion.

Assignment of Policies.—The proposed bye-laws of 1763 provided as follows:

All assignments which shall be made of the pol. shall be briefly entered in a book to be kept for that purpose; and for every such entry shall be paid for the use of the So. the sum of . . . ; and if the pol. shall be assigned, and that assignment shall not be produced, or notice thereof given to the Act. of the So., so that entry thereof may be made within six months from the date of such assignment, there shall be forfeited to the use of the So. the sum of £3 6s. 8d., which sum, if not otherwise paid, shall be deducted out of the claim which shall become due on such pol. at the time of the payment of the said claim.

These bye-laws were never confirmed; but the above seems to indicate the practice of the So. [*Policies.*]

Auditors.—1773.—17 June.—£5 5s. for each audit to be divided among those present.

1775.—Auditors were to be chosen at each quarterly gen. court of the So. who should be ins. in £300 on their own lives, or on lives of others. In Dec. auditors to be chosen for inspecting ann. accounts.

1783.—“That no member be appointed to audit the accounts of the So. in 2 successive years, directors only excepted.”

1793.—5 Sept.—Auditors to be elected out of persons competent to vote at gen. courts; to go out of office after 1 year, and not to be re-chosen for 2 years. £10 10s. to be divided among them for each audit.

1807.—3 Sept.—Qualification for auditors from new members £1000 whole-term.

1827.—Fees to be increased by a sum not exceeding £5 5s. for each audit.

1839.—19 Dec.—Fresh regulations for election of auditors.

Beer-retailers.—1829.—The So. charged an extra rate of 11 p.c. computed on the prem. for persons "holding the magistrates' licence to retail beer." This extra—which is usually, but erroneously, supposed to have been charged in the early days of the So.—was evidently the result of experience. All subsequent experience has confirmed the justice of this extra charge for beer-shop-keepers.

Bonus Additions, Sale of.—In 1825 it was resolved at a gen. court that the bonus add. to pol. might be surrendered to the So. apart from the pol. to which they belong. Mr. W. Morgan, in his *View*, etc. (1829), says:

I am very sorry that it should ever have been thought expedient to allow the sale of these add., which were never intended to be so disposed of, or to be payable in any other manner than with the sum assured, when it should become a claim. The gradual operation of these add., which was one of their chief recommendations, is now destroyed, and this mode of distributing the surplus is rendered little different from that direct alienation of the cap. which I have so often deprecated.

Bonuses.—See *Surplus, Periods and Mode of Ascertaining.*

Calls.—The clauses of the D. 68 to 71 provided for the manner of making calls upon the pol.-holders in the event of the funds of the So. proving insufficient.

1770.—These provisions were modified; but as the power was never exercised, we do not think it necessary to dwell upon it.

Certificate of Death.—The following is the form of certificate of death used by this So.:—"To the President, Vice-Presidents, and other the directors of the *So. for Equitable Assu.* etc. I . . . of . . . in the county of . . . do by these presents certify, that I was personally acquainted with . . . whose life, as it is suggested, was ins. at your office, by pol. No. . . , by the description of . . . and that the said . . . did depart this life on or about the . . . day of . . . 18 at . . . in the . . . And that the said . . . did not die by . . . own hands, nor suffer death by the hands of justice, but that . . . death was occasioned by . . . As witness my hand this . . . day of . . . 18 . . .

Signed in the Presence of . . . residing at . . .

¹ N.B.—The certificate to be signed, and the nature of the disease to be particularly specified, by the physician, surgeon, or apothecary, who attended the deceased, and witnessed by the minister of the parish or some neighbouring Justice of the Peace, or other person or persons of established credit.

Claims, Payment of.—The claims under pol. were orig. paid 6 months after proof of death.

1827.—5 April.—Ordered, That in future the claims due upon pol. (provided such pol. be in the hands of the personal representatives of the deceased) be paid at the period of 3 months from the time when the death of the party assured shall have been proved to the satisfaction of the court of directors.

1855.—6 Sept.—Ordered that claims on *all* pol. be paid 3 months after satisfactory proof.

Conditions of Ins.—The early pol. of the So. contained no "conditions of ins." The regulations and by-laws of the So. for the time being were binding upon the members. The proposed by-laws of 1763 contained a code of conditions.

Cowpox.—1802.—2 Dec.—At a gen. court it was "Resolved, that the directors be empowered to grant pol. of assu. upon the same terms to persons who aver in their declaration that they have had the cowpox, as to those who aver in their declaration that they have had the smallpox. But if such person shall die afterwards of the *smallpox*, then such pol. shall be void."

1823.—6 Mar.—At a gen. court it was resolved, that the words in the above by-law, "*But if such person shall die afterwards of the smallpox, then such pol. shall be void,*" be expunged. [*Smallpox.*]

Days of Grace.—1810.—6 Dec.—At a gen. court it was ordered, "That in case any person or persons, on whose life or lives an assu. shall have been made, shall die within 30 days next after the time stipulated in the pol. for the payment of the prem. due thereon, such pol., although the prem. so due be unpaid at the time of the decease, shall nevertheless, on the prem. being subsequently paid within 30 days next after the same became due, continue in force, and be valid to all intents and purposes in the same manner as if such prem. had been paid in the life-time of the person or persons on whose life or lives the assu. was made."

Declaration, required to be made by all persons ins. their own lives, in conformity with clause 17 of D. of Sett.

I . . . being desirous of becoming a member of the *So. for Equitable Assu.*, etc., and intending to make assu. in the sum of . . . upon and for the continuance of my own life, and having perused and considered that clause (17) of the D. of Sett. of the said So. which requires a declaration in writing of the age, state of health, and other circumstances attending the person whose life shall be proposed to be assured, do hereby declare and set forth, that my age does not exceed . . . ; that I have . . . had the cow (or small) pox . . . ; and have . . . had the gout; and that I am not afflicted

with any disorder which tends to the shortening of life; and I do hereby agree that this declaration be the basis of the contract between the said So. and me, and that if any untrue averment is contained in this declaration, all moneys which shall have been paid to the So. upon account of the assu. made in consequence thereof, shall be forfeited. Dated the . . . day of . . . in the year of our Lord . . .

The following is the substance of a declaration required to be made and signed in the office, by or on the behalf of a person who proposed to make an assu. on the life of another.

I . . . being desirous of becoming a member of the So. for *Equitable Assu.*, etc., and intending to make assu. in the sum of . . . upon the life of . . . and having perused and considered that clause (17) of the D. of Sett. of the said So., which requires a declaration in writing of the age, state of health, and other circumstances attending the person whose life shall be proposed to be assured, do hereby declare and set forth, that the said . . . has not any disorder which tends to the shortening of life; . . . that he has . . . had the cow (or small) pox . . . ; and has . . . had the gout; and that the age of the said . . . does not exceed . . . years, and that I have an interest in the life of the said . . . to the full amount of the said sum of . . . ; and I do hereby agree that this declaration be the basis of the said contract between the said So. and me, and that if any untrue averment is contained in this declaration, all moneys which shall have been paid to the So. upon account of the assu. made in consequence thereof, shall be forfeited. Dated the . . . day of . . . in the year of our Lord . . .

It was required by the Deed that this declaration should be attested by the signatures of two witnesses. It seems very early to have become the practice to accept one witness only; and this departure from the Deed was made a ground of complaint against the executive in the disputes which arose in the So. during the years 1768-9.

1771.—It was enacted that "one credible witness shall suffice."

Deposit.—By clause 65 of Deed, persons applying for membership were to pay deposits as follows. If ins. for less term than 10 years, 10s. for every £100, or part of £100 ins. If for whole of life, 20s. for each £100, or part of £100.

1770.—27th June.—By bye-law of this date, "The deposit prescribed by the 65th clause of the D. of Sett. to be taken from every person making assu., be in future dispensed with."

1815.—The prosp. of this date said:

Every person proposing any assu. is required to make a deposit of 5s., and in case the sum proposed to be assu. shall exceed £100, the deposit will be increased after the rate of 2s. 6d. for every £100; which deposit, if the party afterwards decline making the assu., or neglect to complete the same for the space of one *lunar month*, is forfeited for the use of the So.; but if the court of directors refuse or decline making such assu., the money deposited is returned.

Director, Qualification for Office of.—By clause 19 of Deed, £300 ins. on own life.

1770.—12 July.—£300 on own life, or lives of others, and dwelling within the City of Lond., or within 20 miles thereof. [1866.] Only five qualified by ins. on lives of others can be on board at same time.

1787.—9 Jan.—Persons with £1000 ins. on own life.

1802.—2 Sept.—Persons ins. for £2000 and upwards.

1807.—3 Sept.—Persons ins. for £3000 and upwards.

1810.—23 Jan.—Persons ins. for £5000; and who had been members at least 5 years.

1816.—31 Dec.—Persons ins. for £5000 during a period of 5 years, and who shall come within the privileged 5000.

1866.—The disqualification of residing beyond 20 miles from the City of Lond. removed.

Directors' Remuneration.—1762, 7 Sept. to 6 May, 1778, £2 for each court amongst the whole board; 1778, 6 May, to 17 Jan. 1782, £240 p.a.; 1782, 17 Jan. to 5 Sept. 1793, £400 p.a.; 1793, 5 Sept. to 5 April, 1827, £1 1s. for each attendance; 1827, 5 April, £1500 p.a. to be divided according to attendances; 1841, 3 June, £2000 p.a.

Division of Profits.—See *Surplus, Periods and Modes of Ascertaining*.

Docquets.—In respect of every pol. issued by the So. a "docquet" was to be preserved, in the following form, which is indeed a copy of the docquet of the first policy issued by the So.:

Numb. 1.

By the So. for Equitable Assurances on Lives and Survivorships.

To *Edward Rowe-Mores of Leyton, Esq.*, for the assurance of the sum of *Two Hundred Pounds* upon the natural life of *him the said Edward Rowe* [the other part of name omitted], to be paid to the *Executors, Administrators, or Assigns of him the said Edward Rowe* after the decease of *him the said Edward Rowe* whenever the same shall happen, at and under the annual premium of *Seven Pounds Sixteen Shillings and Sixpence*, dat. 16 September, 1762.—Declaration No. 3.—Signed—Order . . . Examined by . . .

These docquets bear the signatures of the directors who sign the pol.; they are also initialled by the Act.; and bear the counterpart of an office stamp.

The same practice, in the same form, is still continued. [*Policies.*]

Entrance Money.—By the 57th clause in the Deed, members were to pay entrance money after the rate of 15s. for each £100, or part of £100 ins. In 1770 the entrance money was reduced to 5s. per £100. In 1855 it was abolished altogether. In our hist. of the So. we have seen the disputes which from time to time arose regarding the origin and continuance of the "entrance money." [*Appearance before the Board.*]

Expenses of Management.—The So. expended in 86 years the sum of £418,236 in management expenses, being at the rate of £4863 p.a. It never paid any agency commission for the introduction of business (see 1873).

Extra Prems.—From an early date the Society charged extra prems. for the ins. at *Military* and *Naval* persons, and others, as shown under the various Sub-headings. In 1829 add. were made for *Hernia* and for *Beer-retailers*. [*Cout.*] [*Smallpox.*]

1874.—“No extra prem. is charged for service in the militia, or any yeomanry or volunteer corps within the U.K. during peace or war.”

Felo de se.—See *Suicide*.

Female Hazard.—Clause 11 of the Deed empowered the directors to charge such add. prems. for ins. the lives of girls and women under 50 years of age as might be adequate to the hazard. Accordingly, a special scale of premiums was prepared for female lives. See *Premiums*.

1772.—4 June.—“Ordered, that for the future the lives of females be assured upon the same terms as the lives of males.”

Fines.—By sec. 55 of Deed, power was given to gen. courts to impose penalties on any of the members of the So. for any breach or non-observance of the statutes or bye-laws, rules, orders, or ordin. of the So. By sec. 68, if any member refused or neglected to pay “Calls” as directed by gen. court, then gen. court might inflict penalty on defaulters.

1770.—27 June.—In the bye-laws of this date this latter power was re-enacted.

1831.—See *Lapsed Pol.*

Foreign Residence and Travel.—Under date 1764 we have seen the motives which induced the directors to confine the limits of residence and travel to “climates not more unhealthy, or abodes more perilous than our own.”

1823.—At a court of directors held 30 July, it was :

Resolved, That in future all persons whose lives are assu. in this office may go to sea, during peace, without obtaining any licence from the court of directors, and without paying any add. prem., from any part of the U.K. to any other part of the U.K., and direct to and from any port in Gt. Brit. to any port between Helvoet and Brest, both inclusive; and also direct to and from Guernsey, Jersey, Alderney, and Sark, provided they go in vessels usually employed in carrying passengers; and that their respective pol. shall not be forfeited in case of their dying upon the seas under such circumstances.

1874.—No extra prem. is charged “for going by sea from any part of Europe to any other part of Europe.”

Forfeiture of Policies.—By the orig. Deed (clause 67), all pol. were to be forfeited if the prem. remained unpaid for 30 days after time of payment stipulated in the pol.; but might be revived within 3 months if insured in good health, on payment of a fine of 10s. for each £100 ins.

1791.—22 Dec.—“Resolved, That if it shall appear that the non-payment of a prem. upon any pol. of assu. has happened by reason of the actual incapacity of the party interested therein, such as mental derangement or extreme illness, it shall be in the discretion of the court of directors for the time being to re-estab. the pol. (within the term of 12 calendar months) upon payment of the prem., together with lawful int., computed from the day on which the same became due.”

1795.—4 June.—“Resolved, that no order shall be made for returning money on a forfeited pol. at the same gen. court at which the petition for such return shall be presented; nor shall any order made in that behalf be considered as valid and effectual until it shall have been approved at two successive gen. courts.”

1802.—2 Sept.—“Resolved, that when through misfortune or unforeseen events, a pol. made for assu. a sum for the whole continuance of a life or lives, and which shall have existed for a term not less than 7 years, shall hereafter become forfeited, and the person or persons on whose life or lives the assu. was made shall have exceeded the age of 67 years, beyond which age no life according to the present rules of the So. is assurable, the directors be empowered, upon satisfactory proof of such person or persons being in a good state of health, to grant a new pol. on such terms as they shall think equivalent to the risque arising from the increased age.”

1831.—1 Sept.—“Ordered, that if any pol. of assu. shall become forfeited, the directors shall be at liberty to re-establish the same, subject to such fines, terms, and conditions as they may think just and equitable, provided they shall, upon a full consideration, be satisfied that the party interested has not been guilty of an intentional omission, and that the circumstances of the case are such as to justify them in granting relief. The number and amount of any policies so re-estab. to be reported at next quarterly court.”

Funds, Investment of.—The Deed did not restrict the investment of the funds to any particular class of securities.

1778.—Declaration of gen. court that the directors had power to invest funds in their discretion.

1825.—Discussion as to investment of funds.

1831.—Question of making advances upon the pol. of the So. with a view of improving investments considered, and on opinion of counsel negatived.

1858.—Resolution to make advances on pol. [*Loans on Pol.*]

1860.—The scope of the directors as to investment of funds enlarged.

1865.—Ditto, ditto.

General Court, Payment to.—It has been the custom to remunerate members for attending the gen. courts, of whom at least 21 must be present to constitute a court :

1771.—5 Dec.—£5 5s. to be divided among the 21 who come first.

1772.—16 April.—£3 3s. to members present if not sufficient to constitute a court.

1782.—17 Jan.—£10 10s. among the first 21 members.

At present 2s. 6d. is paid to each member who attends at eleven o'clock.

Gout.—The So. at the commencement charged £12 10s. extra on its premis. to persons who suffered from Gout. In 1781 it reduced the extra charge to 11 p.c. on the premiums.

Hands of Justice.—See *Snicide*.

Hernia.—1829.—Persons afflicted with Hernia were charged an extra rate of 11 p.c. computed on the premis.

Inquiry.—1770.—It was ordered that a space of 8 complete days should intervene between "the giving notice of an intention to make assu. and the granting thereof," in order "to give the better opportunity for making the necessary inquiry concerning the life proposed to be assu." And "to this end the Act. do inform himself from the party applying, of the residence, profession, etc., of the person whose life is to be assured, and to whom known; and that he do lay such information before the then next court of directors."

1793.—26 March.—Inquiry might be dispensed with in cases of ins. for terms not exceeding 1 year, "when the directors were thoroughly satisfied as to the health of the party proposed."

Insurable Interest.—One of the regulations of 1762, already quoted, provided that no person was to be permitted to ins. the life of another until he made it clear to the directors that he had an interest in such life, "at least equal to the sum which he proposed to assure." This was enlarged in the proposed bye-laws of 1763, by the following add.:

And as it may be sometimes inconvenient for persons desiring to make assu. with the So., publicly to make known their interest in the life of another; in such case it shall suffice that they make it appear to the person who shall preside at that court at which the application is made; who (if it appeareth to his satisfaction) shall upon his oath declare to the court that the interest of the party applicant in the life of the other is a sufficient ground and inducement for the assurance proposal to be made.

1770.—Bye-law that declaration must be signed of int. to full amount insured.

Lapsed Policies.—For early regulations, see *Forfeiture of Pol.*

1831.—2 June.—Ordered, that if it shall appear that the non-payment of a prem. upon any policy of assu. has happened by reason of any accidental neglect or unintentional omission, it shall be in the discretion of the court of directors, for the time being, to re-estab. the pol. within the term of 15 calendar months from the day of payment mentioned in the pol. upon payment of the prem., together with lawful int., computed from the day on which the same became due, and subject to such other fines, terms, and conditions, as the directors may think reasonable.

Limited Number of Premis.—1822.—2 May.—Resolved, that the directors on the application of persons making assu. on their own lives, or on the lives of others, be empowered to make such assu. at ann. premis. during a limited number of years rather than during the whole continuance of life, such premis. to be computed at a higher rate, in proportion, as the time during which they are to be paid is shorter.

6 June.—Resolved, that the directors on the application of persons assu. on their own lives, or on the lives of others, be empowered to exchange the ann. premis. now payable on such assu. during the whole continuance of life, for equivalent ann. premis. to be paid during a limited number of years, or for the payment of an equivalent prem. in one gross sum.

Limits of Ins.—At first there does not seem to have been any limit assigned as to the amount of ins. to be granted on any one life. It appeared from the tenor of the Deed that none but small sums were contemplated. 1775.—Limit increased from £1500 to £2000. 1783.—18 Dec., increased to £3000. 1790.—17 June, increased to £5000. 1856.—6 Mar., increased to £10,000.

Limits of Residence and Travel.—See *Foreign Residence and Travel*.

Loans on Policies.—1831.—2 June.—At a gen. court the directors were requested to obtain the opinion of counsel as to their power to make advances on the policies of the So. They did so, and were advised they had no such power.

1858.—1 July.—At a general court it was resolved that the directors might advance moneys on the pol. of the So.; but the sum advanced, and 1 year's int. thereon, must never exceed the surrender value of the pol. [*Funds, Investment of.*]

Medical Examination of Lives.—In 1779 Dr. Price (in his preface to Morgan's *Doctrine of Annuities*) urged upon the directors the importance of preventing the intrusion of bad lives; and suggested that "it would not perhaps be amiss to appoint a medical assistant, whose particular bus. it should be to inquire into the state of health of the persons who are offered to be assured."

The practice of medical selection was not introduced until 1858, when Dr. Johnson was appointed, and still remains, medical officer.

Military Service.—In 1764 it was resolved to ins. military and naval persons not in active service at the ordinary rates. For military persons on active service the increase upon the ordinary rates was 25 p.c. on the premis.

1781.—20 Dec.—"Ordered, That for the extraordinary risque attending the lives of military persons, an add. be made after the rate of 22 p.c. on the respective premis." [*Extra Premis.*]

Mortality Experience.—See EQUITABLE SO., MORT. EXPERIENCE OF.

Naval Service.—See *Military Service*; the regulations as to each having been the same.

Notice of Intention to Ins.—See *Inquiry*.

Policies.—The proposed bye-laws of 1763 enacted as follows :

All pol., after they shall have been executed by the trustees of the So., shall be produced by the Act. at the next weekly meeting of the court of directors, and shall be examined and compared with their respective docquets [*Docquets*], and such examination shall be testified under each docquet by the person who shall preside at that court at which the examination is made. . . . [*Assignment of Pol.*]

If any pol. of the So. shall be lost or mislaid (the person whose life was assu. by such pol. being yet alive), a new pol. of the same import shall be granted by the So.; and if the person whose life was assu. by such pol. be dead, the claim shall nevertheless be paid. But in either case good and sufficient security shall be given to the trustees of the So., to indemnify the So. against any further demand. [*Conditions of Ins.*]

The above prob. indicates the practice of the office.

Premiums.—Under date 1756 we have given what we understand to be Mr. Dodson's prems., as used by the promoters; while under date 1762 [in our hist. of the So.] we give the scale of prems. as set out in the D. of Sett. and first prosp. of the So. after its actual estab. In the proposed bye-laws, "Statutes," of 1763, were embodied two complete scales: (1) ins. for one year; (2) ins. for whole of life. These we reduce into the following tabular form. They were prefaced with the following remarks :

It is ordained and ordered that the prems. of assu. for the several ages of the life of man shall be ascertained and regulated according to the rates hereafter following, that is to say: when neither the occupation of the person, nor the circumstances of the life whereon the assurance is made, shall be attended with any peculiar hazard, there shall be demanded and taken for the assu. of the sum of £100 for a single year, upon the life of a healthy man of the age of—

Meaning the ages in the following T.:

Age.	Ins. for 1 year. Males only up to 50, Males and Females beyond.	Ins. for whole life. Males only up to 50, Males and Females beyond.	Age.	Ins. for 1 year. Males only up to 50, Males and Females beyond.	Ins. for whole life. Males only up to 50, Males and Females beyond.
8	£ 1 10 06	£ 2 04 10	38	£ 2 17 07	£ 4 07 09
9	1 10 08	2 05 00	39	2 19 09	4 09 11
10	1 10 10	2 05 03	40	3 02 00	4 12 02
11	1 11 00	2 05 07	41	3 04 04	4 14 06
12	1 11 03	2 06 00	42	3 06 09	4 17 00
13	1 11 06	2 06 08	43	3 09 03	4 19 06
14	1 11 09	2 07 07	44	3 11 10	5 02 01
15	1 12 06	2 08 09	45	3 14 05	5 04 08
16	1 12 09	2 10 00	46	3 17 01	5 07 03
17	1 13 03	2 11 03	47	3 19 10	5 09 10
18	1 14 00	2 12 07	48	4 02 08	5 12 07
19	1 14 09	2 13 11	49	4 05 07	5 15 05
20	1 15 06	2 15 04	50	4 08 08	5 18 04
21	1 16 03	2 16 10	51	4 11 10	6 01 04
22	1 17 00	2 18 05	52	4 15 01	6 04 05
23	1 17 09	2 19 01	53	4 18 06	6 07 08
24	1 18 06	3 01 09	54	5 02 00	6 11 03
25	1 19 04	3 03 05	55	5 05 07	6 15 06
26	2 00 03	3 05 02	56	5 09 03	6 19 03
27	2 01 03	3 06 11	57	5 13 00	7 05 07
28	2 02 03	3 08 08	58	5 16 10	7 11 06
29	2 03 03	3 10 05	59	6 00 09	7 18 00
30	2 04 06	3 12 03	60	6 04 10	8 05 02
31	2 05 09	3 14 01	61	6 09 01	8 13 02
32	2 07 00	3 15 11	62	6 13 06	9 02 00
33	2 08 06	3 17 09	63	6 18 01	9 11 08
34	2 10 01	3 19 07	64	7 02 10	10 02 02
35	2 10 10	4 01 06	65	7 07 09	10 13 06
36	2 13 08	4 03 06	66	7 12 10	11 05 08
37	2 15 07	4 05 07	67	7 18 01	11 18 08

"And for the assu. of any life attended with peculiar hazard such advance shall be made in the said prems. as the weekly meeting of the court of directors of the So. shall, in their discretion, think meet and proper."

We do not know whether this T. was really ever employed, or whether it was simply constructed by Mr. Mores with the view of being used. The "Statutes" in which it was contained were never formally adopted by the So.

1764.—The rates of prem. were increased, as we have shown by a col. add. to the scale of rates given in 1762.

1765.—The rates of prem. were again increased in the case of persons ins. under the age of 30 (see hist. under this date).

1777.—The rates were reduced 10 p.c.

1780.—In consequence of a rep. from the court of directors to a gen. court, on the 7th of Dec. 1780, recommending the use of the *Northampton T.*, then recently pub. by Dr. Price, it was unanimously resolved and ordered at a gen. court, on the 2nd of Jan. 1781, "That the directors do, and they are hereby empowered to take the necessary steps for effectuating and carrying into execution the measures recommended by the said rep., with all convenient dispatch."

1781.—On the 5th Dec. 1781, the T. which had been formed by the Act. for carrying the intention of the general court into execution were laid before the court; and it was ordered, "That these T., with the addition of £15 p.c. recommended by the directors upon the respective prem., be adopted by the Society." This add. of 15 p.c. was made because the directors thought the Doctor was lowering the character of the inst. in lowering the charges!

The rates of prem. charged therefore were as shown in the annexed abstract:

1786.—The add. of 15 p.c. was discontinued on a recommendation from the court of directors, by an order of the general court, on the 21st of December, 1786. The rates then became reduced, as is shown in the abstract following:

It was at the same time announced: "An add. of £22 p.c. computed upon the prem., is charged upon military persons; and an addition of £11 p.c. on officers on half-pay, officers in the militia, fencibles, and the like levies; on persons not having had the small-pox, or cowpox, or having had the gout, or been afflicted with hernia; and also on persons holding the magistrates' licence to retail beer."

These extra charges have been from time to time modified or abolished, as is shown in our sub-headings.

1822.—2 May.—At a gen. court power was given to receive "prems. payable during a limited number of years," and T. were prepared accordingly, of which the following is an abstract:

Age.	One Year.	Seven Years.	Whole of Life.
	£ s. d.	£ s. d.	£ s. d.
8	1 9 2	1 10 7	2 2 10
14	1 10 3	1 11 9	2 5 5
20	1 13 11	1 16 0	2 12 10
25	1 17 7	2 0 2	3 0 6
30	2 2 6	2 6 0	3 8 11
35	2 8 7	2 14 2	3 17 9
40	2 19 2	3 5 1	4 7 11
45	3 11 0	3 18 6	5 0 0
50	4 4 8	4 11 2	5 12 11
55	5 0 9	5 11 7	6 9 3
60	5 19 1	6 16 10	7 17 7
65	7 0 11	8 13 0	10 3 9
67	7 10 10	9 12 0	11 7 9

Age.	Single Premium.	One Year.	Seven Years.	Whole of Life.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
8 to 14	39 4 6	0 17 9	1 1 5	1 17 7
20	42 16 0	1 7 3	1 9 5	2 3 7
25	45 4 0	1 10 7	1 12 1	2 8 1
30	47 16 0	1 13 3	1 14 11	2 13 5
35	50 13 4	1 16 4	1 18 10	2 19 10
40	53 16 10	2 0 8	2 4 1	3 7 11
45	57 4 2	2 6 8	2 10 10	3 17 11
50	60 17 4	2 15 1	3 0 8	4 10 8
55	64 12 3	3 5 0	3 12 0	5 6 4
60	68 12 2	3 18 1	4 7 1	6 7 4
65	72 18 0	4 15 2	5 10 10	7 16 9
67	74 14 3	5 5 6	6 5 2	8 12 1

Age.	3 Years.	5 Years.	7 Years.	10 Years.	15 Years.	20 Years.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
8 to 14	13 11 6	8 9 2	6 5 9	4 13 5	3 8 10	2 16 10
20	14 18 0	9 6 8	6 19 2	5 3 10	3 16 10	3 3 9
25	15 15 2	9 17 8	7 7 7	5 10 3	4 1 10	3 8 2
30	16 13 9	10 9 7	7 16 8	5 17 4	4 7 4	3 13 1
35	17 14 3	11 2 11	8 6 10	6 5 4	4 13 11	3 19 0
40	18 17 4	11 18 0	8 18 10	6 14 10	5 1 7	4 6 1
45	20 2 2	12 14 5	9 11 7	7 5 8	5 10 6	4 14 6
50	21 9 10	13 13 8	10 6 8	7 17 10	6 1 6	5 5 0
55	22 18 7	14 13 0	11 2 11	8 11 6	6 13 11	...
60	24 10 4	15 15 6	12 1 7	9 8 0	7 9 11	...
65	26 5 8	17 1 7	13 4 7	10 9 9	...	...
67	27 1 9	17 14 2	13 16 1	11 1 3	...	...

The ordin. T. of prems. has not been changed since 1786; although, as shown in our hist. of the So., many attempts have been made in that direction.

Proposal, Form of.—The following is the early form of proposal used by this So. :

- (1) Name and profession of the life to be assured (2) Place and date of birth
 (3) Present residence (4) Age (5) Sum (6) Term (7) By whom
 made (8) To give a reference to 2 persons of good repute (one if possible of the medical
 profession) to ascertain the present and general state of health of the life to be assured
 (9) If had the smallpox? (10) If had the cowpox? (11) If had the gout? (12) If
 ever ruptured?

Note.—Persons who do not appear before the court of directors, or who cannot refer to a person of the medical profession, are required to give a reference to 3 persons for an account of the present and general state of their health.

Seafaring Lives.—In 1764 it was resolved to ins. seafaring persons not in actual service at ordinary rates.

Security by Staff.—1774.—The Act. to give security for £2000 [bye-law, 17 Feb.]. 1816.—7 March.—Ordered, “That the present as well as all future clerks shall be required to give security to the trustees of the So. in the amount of £1000, themselves jointly and severally with two other securities.”

Smallpox.—The So. at the commencement charged 12½ p.c. extra on the prems. for persons who had not had the smallpox. In 1781 this was reduced to 11 p.c. extra. Other changes followed ; but these have been fully set out under *Cowpox*.

Suicide, etc.—Regarding suicides and the hands of justice clause, the following modifications were made from time to time :

1770.—That the exceptions respecting persons dying by their own hands or by the hands of justice, which have been usually inserted in pol. granted by this So., be in future omitted upon every assu. made by any person upon the life of another.

1771.—That the pol. of persons already assu. upon the lives of others shall not become forfeited by reason of the person on whose life they are assured dying by their own hands or by the hands of justice ; it appearing reasonable that persons already assured shall enjoy the same advantage with those to be assured in future.

1817.—4 Sept.—Ordered, That in all future cases, if a member ins. on his own life, and who has paid at least 5 ann. prems., shall die by his own hands, and not *felo de se*, a sum equal to what the So. would have paid for the purchase of his interest, if it had been sold the day previous to his decease, shall be paid to his representatives, provided that the interest in such assu. remained in the assured at the time of his decease.

1855.—6 Sept.—Ordered, That in future if a member assu. on his own life shall die by his own hands, a sum equal to what the So. would have paid for the purchase of his interest in the pol. if it had been sold the day previous to his decease shall be paid to his executors, administrators, or assigns.

Surplus, Periods and Modes of Ascertaining.—The time and mode of declaring bonuses (called then “dividend”) were provided for in clauses 70 and 71 of the original Deed. But as early as June, 1770, the following amended scheme was substituted :

That when and as often as it shall appear to a gen. court of the said So., that the stock of the said So. arising from prems. is more than sufficient to pay the claims made or liable to be made, then and so often the said So. shall, in a gen. court, declare a dividend of the surplus, or of such part thereof as shall by the said gen. court be thought and judged convenient, amongst the then members of the said So. liable to contribute towards a call in manner and form following (that is to say), the members of the said So. who shall be assu. with the said So. upon and for the whole continuance of a life (those who shall have so become members in the then current year, or the then last year preceding, only excepted) shall be divided into classes according to the number of the years of their standing in the said So., and those of the said members of the said So. who shall have completed one entire year’s standing in the said So. on or before the last day of Dec. next preceding the declaration of the said div. shall constitute the first of the said classes ; which being done, the sum to be divided shall be allotted to the several classes in such sort that the sum to be divided amongst the 2nd class shall be twice as much as the sum to be divided amongst the 1st class, and the sum to be divided amongst the 3rd class shall be thrice as much as the sum to be divided amongst the 1st class ; and so on in an arithmetical progression, the sum of the terms of which series shall be the number of the said classes, and the common difference of which series shall be unity. After which the sums so allotted to each several class shall be subdivided amongst the individuals of each class in proportion to the sums by them respectively assured.

No dividend (bonus) was ever declared under the orig. clauses of the Deed or under this bye-law.

1775.—Dr. Price communicated to the court of directors two plans : one, for ascertaining at certain periods the amount of the surplus stock ; the other, for determining, with a considerable degree of accuracy, the So.’s accounts in each year. These we have set forth fully in our general hist. of the So.

1776.—The first actual investigation into the affairs of the So. was made. There were then 913 pol. in force which were entitled to parti. We find it recorded that there was a surplus of £25,000, of which £11,000 was distributed. [See hist. 1776.]

1781.—2 Jan.—A gen. court on this date ordered a bonus add. at the rate of 1½ p.c. This was regarded at the time as a mere return of the excess of prems. which had been charged on all whole-term ins. made up to the date when the *Northampton T.* was adopted, with an add. of 15 p.c.

1786.—21 Dec.—A gen. court ordered an add. at the rate of 1 p.c. for each prem. previously paid. This return was made on the occasion of abandoning the 15 p.c. which had been added to the *Northampton* rates in the first instance.

1791.—22 Dec.—By order of a gen. court 1 p.c. in respect of each prem. previously paid.

1793.—26 March.—An add. of 2 p.c. in respect of each prem. previously paid.

1795.—17 Dec.—An add. of 1 p.c. in respect of each prem. previously paid.

1800.—Bye-law that a careful investigation of the value of each pol. was to be repeated once in 10 years. That in future no bonus add. was to be made to pol. without such investigation previously had. That the add. made to pol. in no case exceed in present value *two-thirds* of clear surplus. This in effect gave the So. *decennial* distributions, limited to *two-thirds* of profits.

1809.—By order of gen. court, 21 Dec., an add. of $2\frac{1}{2}$ p.c. for every prem. paid prior to 1 Jan. 1810; also a *prospective* add. of 2 p.c. up to 1 Jan. 1820.

1810.—6 Sept.—Bye-law was made as follows :

Ordered, That in case any *prospective* add. shall hereafter be ordered to be made to claims upon pol. of assu. in this So., such order shall not take effect with respect to any pol. before 6 ann. payments shall have been made thereon : but as soon as 6 such payments shall have been made, such pol. shall, for the time then to come, be within the effect and operation of the order for such add., as if such order had been made immediately after such 6 payments. So that if such order should be made to take effect generally from the 1st day of Jan. 1820, for the space of 10 years then next following, a pol. effected in the year 1810 shall not be within the operation of such order, until a payment shall be made thereon in the year 1824; but such pol. shall be within the operation thereof for every payment that may be made thereon in the 5 years following the year 1824. And the like as to other cases. And this bye-law shall be considered as a part of every such order, and be virtually incorp. therein, although the same may not be thereby expressly referred to.

It was further ordered that in case of any *retrospective* add. ordered after that date, such order should not take effect absolutely until six ann. prems. had been paid or come due before such order. But when sixth payment made, pol. to rank for number of prems. paid before order. This bye-law to be incorp. in all bonus orders.

1816.—19 Dec.—Bye-law made this day, ordered *inter alia* :

That in case any *prospective* add. shall hereafter be ordered to be made to the claims upon pol. of assu. in this So., such order shall not take effect with respect to any pol. granted after 31 Dec. 1816, until the assu. existing in the So. prior in number and date to such pol., and if of the same date, prior in the number thereof, shall be reduced to 5000; but as soon as such reduction shall have been ascertained, in manner hereinafter mentioned, the said pol. shall be within the effect and operation of the order for such add., as to the payments made thereon subsequent to such ascertained reduction : so that if such order should be made to take effect generally from the 1 Jan. 1820, for the space of 10 years then next following, a pol. effected in the year 1817 shall not be within the operation of such order, until the assu. existing prior to the number and date of the pol., as aforesaid, shall have been reduced to 5000; but such pol. shall be within the operation thereof from the time when the reduction shall have been ascertained in manner hereinafter mentioned as to the payments made thereon, as aforesaid. And the like as to other cases. And this bye-law shall be considered as a part of every such order, and shall be virtually incorp. therein, although the same may not be thereby expressly referred to.

Also that in case of any *retrospective* add. such order should not take effect with respect to any pol. granted after 31 December, 1816, until the ins. in the So., prior in number and date, shall be reduced to 5000, but shall be entitled to parti. in respect of all payments after such reduction in the numbers of pol. This bye-law to be regarded as part of every bonus order.

1819.—An add. of $2\frac{1}{2}$ p.c. in respect of every prem. paid and due before 1 Jan. 1820, on all pol. made before 1 January, 1815; also *prospective* add. at $2\frac{1}{2}$ p.c. for next decennium.

1824.—Attempts were made by the old members to retain all the profits to themselves, and to secure that end, they were prepared even to go the length of dissolving the present So. and founding a new one for the future members. We have given a full account of these proceedings, and of the way they were met and frustrated by the Directors and Act. in 1825, under these dates. At one of the courts in 1824 a member moved a resolution for immediately dividing a sum not exceeding two millions [? one million] among the then members of the So.!

The average bonus add. up to this date had been £23 2s. 6d. for every ten years on each £100 insured.

In 1828 another movement was made in a similar direction, this time by changing the basis of valuation. Of this we have given an account in its chronological order.

1829.—17 Dec.—An add. at the rate of 3 p.c. made by a gen. court this day for every year's prem. paid and become due before the 1 January, 1830, on all assu. dated prior to 1 January, 1817, and existing on the 1 January, 1830; and also a *prospective* add. of 3 p.c. to be computed on the sums assu. to the claimants on pol. entitled to add. for every payment made after 31 December, 1829—such add. to cease on 1 January, 1840.

1832-3.—In 1832 and 1833 questions were before the gen. courts as to the relative interests of the old and new members.

1839.—A bonus at the rate of $2\frac{1}{2}$ p.c. p.a. to all those entitled to parti. therein, was declared for the past decennium. Also a *prospective* bonus at the same rate.

1849.—A bonus at the rate of 2 p.c. p.a. declared; and a *prospective* bonus at same rate.

1859.—Bonus at rate of $1\frac{3}{4}$ p.c. in respect of each prem. paid by pol.-holders entitled to parti. [This was the first occasion since 1816 of the aggregate pol. being below the 5000.]

1869.—Bonus at the rate of $1\frac{3}{4}$ p.c. p.a. on all pol. entitled to parti.

Surrender of Pol.—1770.—27 June.—“Ordered, that the court of directors be enabled to accept the surrender of a pol. at the request of the party interested, whenever they shall see just cause.” This was in view of allowing members to escape from liability of contribution.

Surrender Values.—1772.—5 March.—Ordered, “That for the future the court of directors be empowered to accept the surrender of any member’s pol., and to purchase the same upon such terms as shall seem to them reasonable and equitable.”

A prosp. of the So. dated 1791 said hereon :

Every member of the So. assu. for the whole continuance of life has a rateable interest in the claim which will become due at his death : and this interest increases yearly, till at the extremity of life it amounts to the sum assured ; and in case the more immediate purpose of an assurance shall have ceased, and the owner of the pol. should be minded to dispose of the same, rather than to keep it on foot ; or if, through unforeseen misfortunes, any person assured by the So. shall himself stand in need of that assistance which was intended for a surviving family, the Society will upon application become the purchasers of such an interest at a fair price.

Up to 1809 the sum of £72,600 had been paid to members who had surrendered their policies.

1821.—The directors resolved, with the approval of a gen. court, to allow members to surrender any portion of their pol. or bonus add. thereto, and to keep in force the remainder at a correspondingly reduced prem. ; also to parti. in present and future surplus in due proportion.

1824-5.—The question of encouraging surrender of pol. was much discussed at the gen. courts.

Voting at Gen. Courts.—1762.—In respect of £100 ins. on own life for whole-term.

1770.—In respect of ins. for £100 on life of another.

1787.—9 Jan.—£300 ins. for whole of life made the qualification for voting at gen. courts.

1792.—7 June.—For new members not less than £500 whole-life.

1807.—3 Sept.—Ditto ditto £1000

1810.—23 Jan.—For members admitted after 21 Dec. 1809, £2000 whole-life ; and not eligible until 5 years after entering.

1816.—19 Dec.—Only such of the “privileged 5000” as should be ins. for not less than £2000 whole-term.

END OF VOL. II.

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Author Walford, Cornelius

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